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CONTENTS

Recollections of the Prairie Chicken and the Sharp-tailed Grouse in Northwestern Minnesota
By Charles Eugene Johnson 3-17

Incubation Period of the Killdeer By Albert F. Ganier 17-19

Unilateral and Bilateral Ovaries in Raptorial Birds
By F. L. Fitzpatrick 19-22

A Letter to the Game Officials of the State of Connecticut By Myron E. Story 22-24

Further Additions to the List of Birds Victimized by the Cowbird By Herbert Friedmann 25-36

The Birds of Berlin and Harwood Townships, Cass County, North Dakota By Gale W. Monson 37-58

Editorial 59-61

General Notes 62-66

Proceedings 67-70

Communications 71-72

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RECOLLECTIONS OF THE PRAIRIE CHICKEN AND THE SHARP-TAILED GROUSE IN NORTHWESTERN MINNESOTA

BY CHARLES EUGENE JOHNSON

The particular locality here concerned lies in the southwestern part of Marshall County, Minnesota. What is referred to as the homestead is a quarter section of land (N. W. 1/4, Sec. 20) situated about four miles northeast of the village of Warren in McCrea township. Its location is about two and a half miles east of the edge of the valley of the Red River of the North, and about the same distance north of the Snake River, a tributary of the Red.

In a previous paper (*Journal of Mammalogy*, Vol, XI, No. 4, 1930), on the mammals of Northwestern Minnesota, I have described the main physiographic features of the area, so that in the present article mention will be made of only such points as seem necessary for the immediate purpose.

The homestead is in the area of sandy loam stretching eastward from the valley of the Red River and which was, at the time referred to in this paper, characterized by a profusion of poplar-willow groves and thickets with intervening larger and smaller areas of open prairie covered with a luxuriant growth of grasses and flowering plants, and containing numerous sloughs and several coulees. On this homestead we lived continuously from 1889 to the close of 1902, the period with which the present account is particularly concerned. Larger areas of wild land bordered on the east, and less closely on the north, while cultivated lands and smaller areas of wild land lay on the other sides.

The Greater Prairie Chicken
(*Tympanuchus cupido americanus*)

Arrival and Departure. The prairie chicken was a summer resident, only, in all the territory with which I was acquainted. Although I have no exact dates recorded, it arrived, as nearly as I can recall, about the middle of April. Its mating season came at about the time that the spring sowing was completed, and the newly seeded fields, particularly where these bordered wild prairie lands, were one of its

principal "dancing" or "playing" grounds, on and about our homestead. In addition to the fields, mowed areas of wild land, such as dry slough borders and coulee banks, were used for the same purpose. Every morning and evening at this season the booming of the prairie chicken could be heard at all points of the compass, the sound swelling to greatest volume in the stillness of the dawn.

The departure of the prairie chicken took place mainly in October, and the exodus was complete—at least I never saw a prairie chicken during the winter months in any of the territory with which I was familiar. While less noticeable southward movements doubtless had been going on earlier, it was toward the end of the season that definite migratory flights attracted my attention. These flights I observed particularly in the evening, from about sunset until dusk, but whether they extended farther into the night I do not know. Certain flights that occurred at other times of the day at that season may also have been part of the general migratory movement, though not certainly distinguishable from flights of purely local character. But there could be no question about the evening flights which I watched on many occasions. The direction was always straight southward, and the birds flew at a height that as a rule probably did not exceed fifty feet. At this height they cleared the tops of the taller groves in their path, but when passing between groves they often could be seen to be below the level of the tree tops. No sound came from the birds on these flights, other than the periodic whistle of their wings. In size, the migrating flocks varied considerably, from a few individuals to a score or more, just as flocks varied that were met with in the fields. Larger flocks were frequently so loosely grouped or strung out that many seconds might elapse before the last bird had passed a given point.

Although I watched many such passing flocks, and listened to many more that were not distinctly visible, I never happened to see or hear one alight in the period of the dusk. The distance or duration of these flights probably was considerable.

Nesting. Nests of the prairie chicken were to be found generally over the drier prairie areas. On our homestead one particular nesting ground that I remember, within the period that we lived there, was a tract of about ten or more acres bordering a coulee that traversed our land from east to west. Before this tract was broken up it was covered with a luxuriant growth of blue joint grass, amidst which the nesting birds ordinarily would not have attracted notice. But one season the dead grass—the accumulations of years—was set on fire, and

the greater part of the tract was burned over, revealing many nests of the prairie chicken, both old and new, the birds evidently having used this nesting site repeatedly. The damp nest materials next to the ground had resisted the flames more or less successfully, so that after the fire had passed one could stand in one's tracks and count the little heaps that represented the nests, over a considerable part of the area. Some of the nests of the season had been abandoned by their owners, while the eggs remained, more or less browned or scorched; but in a few instances the birds had returned and were found on their nests a day or two after the fire.

On the wild lands to the east, north, and northeast of our homestead, also, I found nests of the prairie chicken from time to time, though I made no systematic search for them here. However, considerable numbers of the birds nested on these lands, as was evidenced not only by the many that yearly were seen on the dancing grounds in these localities, but more particularly by the numerous broods of young that made their appearance later in the summer. These larger areas of wild land were the principal nesting grounds of the prairie chicken population of our immediate territory. Many smaller patches of prairie were found on practically every quarter section of occupied land, also, and on these the species nested to some extent, but such areas were probably of minor importance in comparison with the larger tracts of virgin prairie, mainly because of the proximity of man or his live stock.

It may be supposed, perhaps, that the stubble fields left unplowed in the fall might have served as suitable nesting grounds for the prairie chicken the following season; but this could have been true only of those relatively few such fields that were not spring-plowed. Many of the stubble fields left for spring plowing were turned under before or at about the time that the nesting of the prairie chicken began; hence any nests that might have been started were foredoomed to failure. The fields that were summer-fallowed were plowed later in the season, at a time when the prairie chicken broods would have been hatched, in many cases at least. However, although I was given to much roaming about, I do not recall ever having found nests of the prairie chicken in the stubble fields in our general locality, and I believe that these fields were of little or no significance as nesting grounds for this species.

Hunting. The hunting season on the prairie chicken opened September first, and although I do not recall that any official closing date existed, it terminated automatically when the species departed for

points farther south. By the opening date of the season a certain percentage of the birds were only about two-thirds grown, and many such were shot. More or less pre-season shooting also was done in our territory, when half-grown birds were bagged, but this practice was confined largely to certain individuals among the hunters and for that reason did not reach serious proportions. Much more serious from the point of view of conserving the supply was the absence of all restrictions on the daily or seasonal bag limits. Reduction of bag limits as a means of maintaining the supply was an idea that apparently had not occurred to anyone in that section, if elsewhere. In the period of plenty it was a daily event throughout the hunting season to meet parties of hunters returning from the field with all available space in their double buggies or light wagons packed full of prairie chickens; and at the railway station were to be seen large heaps of hay-stuffed birds ready for shipment, which attested clearly enough the general success of the visiting hunters.

On our homestead, during the years that we lived there, it was seldom really necessary to go beyond the boundaries of our own land to secure a mess of prairie chickens in season. This enabled us to do a little shooting even during the busy week days of harvest time. In the early morning, before the day's work began, or toward sunset, at its close, our watchful eyes rarely overlooked any flocks of prairie chickens that might be in the stubble or on the grain shocks in some undisturbed corner of our fields, when a hurried trip with the shotgun frequently resulted in a mess of game for the table; and these birds as an article of food were always highly valued.

Most of the village sportsmen, as well as the visitors, hunted with trained bird dogs, which were, of course, an important factor in their quantitative results. On the other hand none of the farmers known to me in our particular territory owned such dogs. The farmer's hunting was generally done on foot, unassisted, although occasionally he might be accompanied—and perhaps more or less handicapped—by a farmyard canine of undetermined usefulness. He might, also, now and then, make a round of his fields on a hay-wagon, but his horses were almost invariably gun-shy to a high degree, so that any such excursion meant that a strong-handed driver must be available if the farmer himself wanted to participate in the sport of actual shooting.

Depletion. As probably was true of all other areas in this section, the prairie chicken population in our particular territory was composed, in the fall or hunting season, in part of locally hatched birds and in part of flocks that continually dribbled in from other breeding

grounds, perhaps especially from points farther north. Only on that assumption could the continuous supply of "chickens" during the height of the shooting season be accounted for. What proportion was represented by each of these groups is wholly conjectural, but when the southward drift began, by the middle of September, perhaps, it is quite probable that, at least in the closing years of the period in question, the invading birds far outnumbered the local prairie chicken population. Therefore the intensive hunting that each year took place in our own and many other parts of this general territory, affected not only the next season's local prairie chicken crop, but also that of more distant places. Fewer and fewer birds were left to breed each succeeding season. The result that followed was the only one that could have been expected.

But with the decline in numbers of the prairie chicken there came, also, so far as our own general locality was concerned, a large falling off of visiting hunters, so that even at the close of the period there still remained a fair supply of this game, although in the light of future events it was not sufficient to hold out for many more years against such shooting as continued thereafter.

The question may be raised whether the gradual reduction of nesting areas due to the breaking up of the wild lands was not equally responsible with the large-scale, intensive hunting for the great decrease of the prairie chicken during this period. There is hardly a doubt, of course, that even without any hunting at all the species would have been reduced following widespread elimination of its nesting grounds. However, the birds would not have been killed off by the thousands over all this territory, and in all probability would have occupied to a much greater extent those natural nesting grounds that remained untouched by man. For as it was, aside from the innumerable smaller patches that dotted the cultivated areas, very considerable tracts of wild land remained, so that nesting grounds were available for a vastly greater breeding population of prairie chickens than actually returned to the territory in the last few years of the period. The relative scarcity of the breeding birds can be explained, I think, only by the excessive killing. The depletion had progressed to the point where there were not enough birds left to occupy more than a small part of the nesting areas available. The conclusion seems unavoidable, therefore, that excessive killing by hunters was the principal factor in the depletion of the prairie chicken in this territory.

The Prairie Sharp-tailed Grouse
(*Pedioecetes phasianellus campestris*)

Arrival and Departure. The sharp-tailed grouse began to arrive in our area about the first of October and departed the following March, having disappeared about the time the prairie chicken returned. I never found any evidence of the sharp-tails nesting in the general territory here under consideration.

Upon its first arrival the sharp-tailed grouse was usually found in the stubble fields, where in habits and behavior it was essentially like the prairie chicken. As the fall plowing progressed it was to be seen more and more frequently in the open, on the plowed ground, but keeping as a general rule close to the edges of bordering stubble fields, thickets or wild grass lands. The birds were frequently to be seen, too, in larger or smaller companies, moving about or merely resting on the many little mowed sloughs or patches of dry prairie that adjoined the fields or nestled among groves in the vicinity of fields. On the wild lands more distant from field margins the sharp-tails were rarely seen at any time during the day; but night bedding grounds were numerous on such lands.

The sharp-tailed grouse in this territory was distinctly not a frequenter of the groves and thickets; it was a bird of the open fields, and with marginal preference only for the groves and thickets. This is not to say that it never entered groves or thickets, because in certain situations it often did, as will appear later; but in the average poplar-willow grove with its tangle of brush and dead sticks it was ordinarily not at home. The kind of habitat that here was ideal for the snowshoe rabbit, for example, was usually avoided by the sharp-tailed grouse.

In the late fall when frosty mornings became of regular occurrence, the sharp-tails began taking to the trees for a certain period of the day. This tree-perching took place mainly on clear mornings, just after sunrise. On cloudy mornings the grouse were to be seen in the trees less frequently, and then only provided the air was still. On breezy mornings, even though clear, it was as a rule useless to look for the sharp-tails in the trees; and if a breeze sprang up while they were in the trees, they soon flew down. The ideal morning for tree-perching was still and clear, with heavy white frost. The grouse were then sure to be found in the trees in numbers.

The length of the daily perching period, if the birds were undisturbed, varied considerably, from ten to fifteen minutes, perhaps, on some days, to an hour or more on the most favorable mornings. This

is without reference to individual birds that occasionally lit in the trees for a few moments before continuing their flight. On leaving the trees the birds might remain to feed in the immediate vicinity or fly away directly to more distant parts.

Occasionally a few sharp-tails were to be seen in the trees late in the forenoon, but I do not recall ever having seen one in a tree in the afternoon or evening. Their tree-perching was distinctly a "matutinal ceremony". It may have been an occasion for sunning and preening themselves, primarily, but their most notable performance during this perching period was a vocal one, leaving with the observer the impression rather that it was a "social hour". The birds kept up a continual cackle or chatter consisting of a variety of notes, some lower, some higher, shorter or longer, with now and then a more prolonged shriek. At a distance it all sounded much like a group of human beings engaged in desultory conversation or friendly argument. This vocalization was most lively on those clear, calm, and frosty mornings when the trees appeared most inviting to the birds, and it could then be heard at a distance of half a mile or more, coming from the groves in various directions and loudly advertising the whereabouts, its seemed, of every flock in the vicinity. In the leafless trees the birds could also be seen at long distances, and might have offered good opportunities for local population or census estimates if anyone had been interested in such an undertaking.

Not every grove was a perching site for the sharp-tails. There were many groves in our area in the trees of which I never saw one of the birds light, but these groves were all surrounded by wild lands —prairie grass, brush, and shrub growth, with no fields, either plowed or stubble, close by. Location with respect to fields seemed to be the determining factor in the selection of perching sites, for in other respects the groves were much alike. Some groves adjoining fields were of larger size, extending back two or three hundred feet or more from the field margin; but the sharp-tails kept to the trees nearest the fields and were never seen in the more distant parts of these groves. The only exception to this, in the localities in question, was found in our pastured area, where, however, as will be pointed out later, the ground conditions were quite different from those in the groves on the natural wild lands. In their tree-perching habits, therefore, the grouse again exhibited their marginal tendencies.

Attractions of a Thicketed Pasture. In connection with the tree-perching habit of the sharp-tails reference was made above to our pastured tract. Aside from the attractions of its groves as perching

sites, this pasture presented also certain other features that evidently made it a particularly favored resort for the sharp-tails during the latter part of the fall, for the birds were to be found here with greater regularity than in any other area of similar size known to me in the territory in question. This pasture comprised about forty acres and included one larger and two smaller poplar-willow groves, joined to one another by a lower and sparser growth of poplar saplings, willows, red-ozier dogwood, service berry, choke-cherry, and smaller shrubbery consisting principally of the snowberry. A circular, relatively deep slough, about a hundred feet in diameter, occupied the southwest corner. This slough contained a thriving growth of willows, about six or seven feet high, with a canopy so dense that hardly any grass or other vegetation could grow on the deeply shaded, damp ground underneath. Parts of three larger grass- and willow-covered sloughs were included in another part of the pasture, while here and there were patches of upland prairie grass. The enclosed area was surrounded almost completely by poplar-willow groves and smaller thickets, grassy sloughs and upland, small strips of cultivated ground approaching it, merely, at three points.

The seasonal grazing, browsing, and ranging of the cattle kept the grass area cropped short, the understory of thicket more or less defoliated and most of the ground litter trampled flat. Cow trails led in all directions.

The sharp-tails began resorting to this pasture soon after their arrival in the fall. Although the birds did not show any pronounced shyness toward the cattle, the latter at this season were turned out to roam at large during much of the day and were returned to the pasture mainly for the night; the grouse consequently had the run of the area largely to themselves. The birds never spent the night anywhere within the pasture, its attractions being only such as concerned their daylight activities; but extensive bedding grounds lay immediately adjacent. Within the pasture a considerable amount of food was to be found, notably snowberry, with the fruit and leaves of which the crops of many grouse that I shot here each fall were filled. In addition to food, the birds found, especially in the sparsely thicketed part of the pasture, many dusting places in the dry, loose soil of cow paths and in the earth mounds around old badger burrows. These dusting places were much used.

Probably of equal importance with the food and dusting places, as an attraction, was the nature of the ground in the thicketed parts. As previously remarked, the surface here was free from the usual

tangle and litter, so that the birds could run about unhampered, and the cow paths offered inviting avenues along which they could travel in almost any direction. Visibility from the point of view of the birds on the ground was good, and the crown of the thicket was sufficiently dense, even after the leaves had fallen, to screen them rather effectively against sudden attack by enemies from above. The hunter, in order to get a reasonably clear view of the ground in his near vicinity, was obliged to stoop; and if he saw any sharp-tails at all, it was merely a passing glimpse of an individual here and there that already had become aware of his presence and at a safe distance was keeping close watch on his movements. Any birds that he might surprise in the open places were likely to scurry quickly into the thicket, filter through to some more open spot and fly away without exposing themselves again to his view.

During the tree-perching season the various groves in the pasture all became perching sites without apparent discrimination. Occasionally lesser flocks were to be seen in the different groves at the same time, but more generally the birds were congregated in some one part or another.

As a locality in which to find the sharp-tails with regularity during the mid-day hours, until snow came, I knew of none better than this pasture. Two parts of the area were particularly frequented at these hours, namely, the central part with its low, sparse sapling and shrub growth and dusting places, and the willow-grown slough in the southwest corner. In the first mentioned place I occasionally surprised the birds while sunning and dusting themselves, which seemed to be their principal mid-day activity aside from more or less leisurely moving about and feeding. The slough offered a shady retreat with excellent protection from above, where the grouse could run about freely and noiselessly over the deep-worn cow trails among the hummocks, and could command a good view of any larger enemy approaching on the ground. Many times when I tried to stalk the birds here they did not immediately take to flight, but scattered over the trails and from various points kept watch on my movements, exposing themselves for an instant here or there yet offering scant opportunity for a shot. If the hunter made a rush, the birds darted to the edge of the cover and flew away before he could get clear. The result of the situation was that the sharp-tails were very often to be found but seldom to be shot in this particular place. There was practically no food for the birds here, so that they apparently sought the spot merely as an inviting retreat during their resting periods.

When snow and actual winter came the pasture presented an aspect almost as bleak and desolate as the earlier one had been attractive, and few were the times that a sharp-tail then was to be found within its borders.

Winter Season. The winters in this part of the state varied more or less with respect to the amount of snow. Some were open, so called, with relatively little snowfall, while in others the snow might lie two feet on the prairie areas and in the stubble fields. Drifting was the usual thing, so that along the weedy margins of the fields and around the thickets and groves the snow was piled high in solid drifts over which a man could walk securely without snowshoes or skis.

The temperature during the coldest spells not infrequently fell to 35 and 40 degrees below zero Fahrenheit, and occasionally to near 50 degrees.

When snow covered the ground the sharp-tails became conspicuous objects as they roamed about, in larger or smaller companies, over the stubble fields and the plowed ground or on the snow drifts along the field margins. Many of the straw stacks out on the stubble fields were now heavily blanketed with snow, their bases surrounded by deep drifts and hence inaccessible to the grouse; but others were drawn upon by the farmer for stock needs and therefore were periodically opened up. The sharp-tails were quick to take advantage of these opened stacks, at which they gleaned a certain amount of food in the intervals, usually weekly, between the farmer's visits.

It was our practice each fall to set up two or three straw stacks in our barnyard for the benefit of the cattle, and these stacks were continually visited by the sharp-tails throughout late fall and winter. The most distant of these stacks was usually not more than about a hundred and fifty feet from the stable, but the farther side of the barnyard was bordered by an open field, a small slough and some brush, so that the approaches to the stacks from this direction were accordingly favorable, and the birds came daily to feed despite the fact that many were shot here for our table. These visits were made most regularly in the early morning, at sunrise and soon after, but also at other hours of the day, until late afternoon or early evening. On stormy winter days troops of the ghost-like forms of the grouse, half crouching, their heads held low, could be seen at intervals through the drifting snow as they came in loose formation across the wind-swept fields. On such days the cattle were usually in the stable, and if no human activity disturbed them the birds remained for a longer or shorter time to feed around the stacks, then departed as unobtrusively as they had come.

The size of the flocks that thus came to our barnyard vicinity varied considerably. On some mornings there would be only three or four individuals, and occasionally but a solitary bird; at other times, flocks of a dozen and more. One of the largest flocks that I remember counting, and that came later in the day, numbered somewhere between sixty and seventy. Single flocks of such size were not, however, frequent; twenty to thirty was more nearly the size of the average larger flock.

Although these birds were not infrequently to be seen moving about over the fields during the middle of the day, there generally came a lull in their activities at this period and one would find them, in fair weather, at the edge of some field-bordering grove or thicket; or on the drifts along weedy field margins, some individuals huddled up, resting, others moving leisurely about, picking up a particle of food here and there, but not straying far from the rest of the flock. In stormy weather when much snow was falling, and drifting heavily —times when it was most interesting to go hunting—I frequently came upon the sharp-tails on the leeward side of some grove where a strip of field adjoined. Here, where the fine snow drizzled and settled heavily upon the low bushes, the grouse found shelter from the gale and sat at rest or moved about, keeping near the edge, however, and not entering farther into the thicket. One or more birds were as a rule in the open, and since the hunter was inclined to fix his attention mainly upon the objects at the edge of the thicket, these "outposts" frequently were overlooked until they suddenly took wing, thereby warning their hidden companions at the thicket edge so that these, too, frequently eluded the gunner. Although the poor visibility, the noise of the gale and the soft snow conspired to make a closer approach of the hunter possible at such times, the birds were, nevertheless, remarkably alert and were not easily caught napping.

Natural Enemies. There is a very general notion that such predatory mammals as the coyote and the fox must find a ground-bedding bird like the sharp-tailed grouse an easy and frequent prey, even in winter when the bird buries itself in the snow. So far as my own experience and observations go this is by no means a certainty. Both foxes and coyotes were plentiful on our homestead as well as in all the surrounding territory and with little effort could be seen almost daily in late fall and winter. I hunted over these areas continually during these seasons, and in the winter on numerous occasions tracked both foxes and coyotes in an effort to discover what their prey might have been and how they had captured it. Tracks of one or the other

occasionally passed directly across the bedding grounds of a covey of sharp-tails, and sometimes within a few feet of the beds of individual birds; but the fact was plainly written in the snow that no capture had been made. Of course, even though signs indicated that the passage of the fox or the coyote and the bedding of the grouse were events of the same night, it does not necessarily follow that the birds were in their beds at the time of their enemies' visit. But the fact remains that the numerous snow beds of the grouse that I saw each winter revealed no telltale signs of tragedy for which either fox or coyote was clearly responsible. It is, of course, entirely probable that such evidence might have been found after more diligent and widespread search, but I believe it rather improbable that the capture of the sharp-tailed grouse by these carnivores was anything more than an occasional occurrence. Had it been common, signs undoubtedly would also have been common.

With regard to the question of the capture of bedded grouse, whether in the snow or on the ground, by fox or coyote, although it is one about which little is known that is based on actual observation, it seems likely that such capture is not the simple matter it might be thought to be. The birds, as I have found them, clearly are not given to heavy slumbers, and the approach of a larger enemy such as either of the two mentioned can hardly fail to reach their sharp ears; furthermore, it may be questioned whether it is within the powers of these mammals, wonderful though their noses be, to locate the exact spot on which the concealed bird lies before they have approached very near to it. The direction of the wind will, naturally, play an important part here, and also the matter of chance enters in. By the time the predator has approached dangerously near, the bird is probably fully aroused, and at the most unexpected moment bursts forth with such startling suddenness that neither the nimble-witted (so-called) fox nor the slower coyote would, I think, at that precise instant remain, as a rule, suffiiciently self-possessed to make the properly timed pounce. If the snow should crust after the grouse had bedded, the situation might be different; but such crusting was not of common occurrence in this territory when the sharp-tails went under the snow.

Of other predacious species that might have preyed upon the grouse, goshawks and great horned owls were occasionally seen in winter, but in and about our homestead area neither was so much in evidence as the snowy owl. The snowy owl kept mainly to the open fields, where the straw stacks served as its perching or resting places, and I do not recall finding any certain evidence that it preyed upon

the sharp-tailed grouse. In the many instances where I examined its perching places on the straw stacks I found no signs that it had been feeding here. It would sometimes sit on a stack for longer periods—an hour or more—and was evidently only resting.

Neither do I recall any specific instances of capture of the sharp-tail by the goshawk or the great horned owl, yet it may be presumed that such captures were occasionally made by these powerful raptors, the numbers of which were, however, too few to be of any consequence in relation to the sharp-tailed grouse or other small game of the territory.

Night Bedding Places. The sharp-tailed grouse was a bird of the open by night as well as by day. I do no trecall ever having found a night bedding place within a grove or a thicket, but frequently in grass patches among scant growths of low brush. In winter as in fall the bedding places were usually in the long grass on the upland prairie or in the sloughs. When a flock bedded for the night the individuals were well separated. On cold nights the birds buried themselves completely in the snow, if deep enough. Occasionally when skiing "across country" after nightfall I happened upon bedded sharp-tails, one or more of which then suddenly burst out from the snow almost under foot. This aroused other birds near by, which now likewise, one by one, whirred away, offering but a fleeting glimpse of their shadowy forms. But the entire flock of such bedded grouse apparently did not always depart, since the birds were sometimes scattered over a considerable area of the bedding ground, and some of the outliers might remain undisturbed. This was revealed at times as one continued on one's way after having started a flock from its bed. Just as one felt satisfied that the last bird had departed and that the bedding area had been passed, out bursts another, and perhaps still another, that happened to lie in his path.

How far the birds that thus are frightened from their beds at night may fly before again settling down, I sometimes thought to determine roughly by listening; but the sound of their wings died away gradually in the distance, and the question remained unanswered.

Hunting. Upon their first appearance in the fall the sharp-tails kept mainly to the stubble fields, where, like the prairie chicken, they were inclined to lie close before the approaching hunter. Later they became shyer and as a rule retreated openly, so that it was much more difficult to get within effective range. When flocks were trooping over the plowed ground they could be seen at a considerable distance, and the hunter then lost no time in the mere search for his game. If he

drove a horse or a team he was able to approach fairly close to the birds, but hunting on foot was a different matter.

In late fall and winter, because of their shyness, stalking the sharp-tails was generally necessary in order to get within shotgun range. When the birds were on the open fields, but near the edge of bordering wild land, it was frequently possible to wet within range by making a longer detour and then crawling on hands and knees through some convenient grove, or even flat on one's stomach through the prairie grass, taking advantage of any taller shrubbery in one's path. It was rarely possible completely to surprise the birds by this method, but even after they had become aware that something was approaching, the ill-defined form of the hunter or the slight agitation of the vegetation was apparently not a recognizable cause for alarm, and the sharp-tails often reacted merely by retreating leisurely farther afield. When the hunter finally reached the edge of his cover, one or more of the birds might be within range and fall prey to his gun; but many were the occasions also when he got nothing for his pains—in the literal sense of the word.

When the grouse began perching in the trees the hunter was accommodated to the extent that the position of this game remained fixed. Stalking was then, too, the necessary procedure. Tedious detours again brought the hunter up, perhaps, on the far side of the grove, and from there it was hands and knees for the rest of the way. As soon as the grouse in the trees became aware of the hunter's presence, any cackling that had been going on ceased, and a silent alertness settled over the group. The hunter having now, perchance, got within satisfactory range of the nearest bird, finds himself confronted by a baffling assortment of tree trunks, boughs and twigs that obstruct his view. Then, just as he finally has succeeded, all tense and eager, in maneuvering into position for a clear line of sight, the intended victim, as likely as not, finds it just the right moment to depart. It was these difficulties in hunting the sharp-tailed grouse that made it, in my own estimation at least, the most thrilling sport to be had locally at that season.

Status. At the close of the period here under review the sharp-tailed grouse in our territory was in a comparatively better position, numerically, than the prairie chicken, although through the previous years its numbers at no time had been so great as those of the other species. There was now, however, a marked decline in the sharp-tails, too, but it could not well be attributed to local shooting. The species in this territory had been the subject of relatively light hunt-

ing, because it arrived, as before remarked, towards the close of the prairie chicken season, when the great majority of our hunters were turning their attention to the next number on their seasonal program, namely, waterfowl shooting. The fact that the sharp-tail was with us only during late fall and winter, therefore, saved it from such wholesale destruction as befell the prairie chicken; but elsewhere, in the territory whence our local sharp-tails came, these birds had, perhaps, become more and more a substitute for the prairie chicken in the sportsmen's quest, and this may possibly have been one reason for the reduced numbers of the sharp-tails wintering in our section.

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INCUBATION PERIOD OF THE KILLDEER

BY ALBERT F. GANIER

The unusually long incubation period of the Killdeer (*Oxyechus vociferus*), as well as other members of the plover family, has long been a matter of interest among ornithologists. When the bird student is first told that so small bird as the Killdeer has to incubate its eggs a week longer than does the ordinary hen, as likely as not he will ask, "What is the joke?" It may then be explained to him of course, that the process yields probably the most precocious day-old chick of any of our native birds.

Although I have found some thirty or forty Killdeer nests, it was not until 1929 that I had opportunity to personally make notes on their incubation period. The Knapp Farm pair is quite well known among our local bird group, some of whom might even claim to know them by their first names. Be that as it may, these Killdeers, year after year, nest on a rocky ledge in a well grazed pasture within 100 feet of a busy road. The nest can always be found within a space of thirty feet wide by 150 feet long and these birds are less wary than elsewhere.

The nest covered by the following observations was the third brood of the season and was found on June 13, at 6 P. M., when it held three eggs. The parent ran from the nest and the eggs were warm. On June 14, at the same hour, I visited the nest and found it to contain four eggs. These, when held in the cupped hand against the sun, showed only a trace of transparency, due to the very opaque nature of the shell. On my visit to the nest a week later this slight transparency had disappeared. I ceased my visits to the nest until the

eggs were nearly due to hatch. On July 12, at 6 P. M., I found the nest contained one egg and three very small young, apparently only a few hours old. They were entirely dry but their bills were laid flat on the ground as though they did not have strength as yet to lift their heads. The remaining egg was not pipped as yet. At 8 A. M. the following morning the egg had an aperture opened at the larger end on the top side. There were only two young in the nest and a brief search within a yard or so of the nest failed to reveal the missing youngster. At 2 P. M. I called and found the missing bird back in the nest. The young were perceptibly larger than they were the previous afternoon and held their heads clear of the ground. The egg was still unhatched and the aperture appeared to be no larger. I assume that this egg hatched during the late afternoon of that day, the 13th, for when I returned twenty-four hours later the nest was empty and no young were close by. While looking for the young I also searched for shells but neither on this nor on previous visits did I find that any had been left in or near the nest.

Assuming that incubation began on June 14, with the laying of the fourth egg, then the last egg took 29½ days to hatch while the others required 28. If, however, incubation commenced on June 13, with the laying of the third egg, then all required 29 to 29½ days to emerge from the shell. I think this is most likely what occurred. It is of interest to note that, although these eggs were incubated in midsummer, with no benefit of shade and on a hot rocky situation, the incubation period was not at all shortened. It is likely that the three young first hatched were detained in the nest, perhaps a full day, to await the hatching of the last egg. Other observers record their leaving the nest within a few hours after hatching but I assume they meant after the hatching of the last egg.

On my last visit, the parents were not at the nest, as I walked briskly to it, but when I left a minute later one of them flew directly to it, presumably to tend the young hidden nearby. Ordinarily, Killdeers will not return to their eggs until the observer is entirely out of sight. With the Knapp Farm pair, however, the sitting bird has been observed to remain on the eggs until approached to within seventy-five feet and return to them when I had retreated to 150 feet, though remaining in full view.

I have previously mentioned that this was the third brood for this pair. On March 30, I found their first nest, when it contained four eggs, and on April 20 the parents were observed tending small young nearby. It is likely that incubation began about March 20, which was

the date of beginning in 1928 and which is about a week ahead of the average date here. Incubation of the second set of four eggs began about May 3, from which it appears that only two weeks elapsed from the hatching of one set to beginning incubation of the next. Many of our Killdeers abandon nesting after the first brood, due to the fact that their nesting places become overgrown with grass and weeds and it therefore becomes difficult for them to rear their young. I believe that three broods in one season is unusual for this species. Subsequent observations showed that a fourth brood was not attempted although the nesting area still remained nearly bare and therefore suited for the purpose.

I find the following data on the incubation period of the Killdeer, in recent volumes of the WILSON BULLETIN:

Bates (V. 18, p. 150); gives 26 days to hatch out.

Sherman (V. 18, p. 196); gives 28 days to hatch out.

Spurrell (V. 29, p. 101); gives 24 to 25 days to hatch out, and states that the eggs were pipped over three days before hatching.

Gabrielson (V. 34, p. 194); gives 25 days to hatch out.

NASHVILLE, TENN.

UNILATERAL AND BILATERAL OVARIES IN RAPTORIAL BIRDS

BY F. L. FITZPATRICK

Some time ago the writer called attention to the fact that bilateral development of ovaries occurs in Cooper's Hawk (*Accipiter cooperi*), and cited the works of several investigators who have observed similar phenomena in European and North American species.[1]

In the case of Cooper's Hawk it was found that the adult female had bilateral ovaries, but only one oviduct, the left. There may have been a vestigial right oviduct, but such a structure was not observed. The left ovary was somewhat larger than the right ovary, and the left ovary contained more large follicles than did the right ovary. However, the smallest follicles in the right ovary appeared to be larger than the smallest follicles in the left ovary. This differs somewhat from the condition found by Kummerlöwe[2] in the adult female of *Accipiter nisus*.

Since this report was made, the writer has examined the urinogenital structures of a number of other species, through the courtesy

[1]Fitzpatrick, F. L. 1930. Bilateral ovaries in Cooper's hawk, with notes on kidney structure. Anatomical Record, Vol. 46, No. 4, p. 381.

[2]Kummerlöwe, Hans. 1931. Vergleichende untersuchungen über das gonadensystem weiblicher vögel, Teil III. Zeitschrift für mikroskopisch-anatomische Forschung, Bd. 24, Heft 4, S. 595-596.

of Director Homer R. Dill of the State University of Iowa Museum, and Curator W. F. Kubichek of the Coe College Museum, who have coöperated in the work by furnishing specimens.

Four female specimens of the Eastern Red-tailed Hawk (*Buteo b. borealis*) have been examined, among others. In three of these cases there was but one ovary, the left. In the other instance, however, a vestigial right ovary was present. This vestigial right ovary consisted of only twenty-three follicles, and of course was far smaller than the right ovaries observed in Cooper's Hawk. It was attached loosely to the mesentery which characteristically lies between the kidneys and the ovary or ovaries.

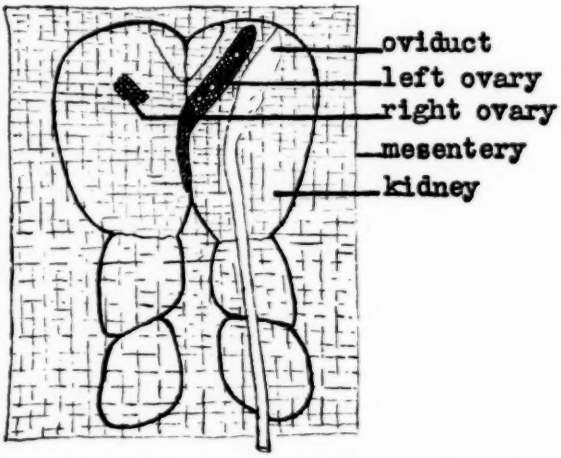

FIGURE 1. Diagram: relative positions and sizes of kidneys and reproductory structures in one specimen of Buteo b. borealis x 1/1.

It was suspected that this specimen of the Eastern Red-tailed Hawk having the vestigial right ovary might be an immature individual; that the vestigial right ovary might characteristically be present after hatching, but might be lost in later development. However, such did not appear to be the case in this instance at least. For a careful examination of the evidence indicated that all four specimens of the Eastern Red-tailed Hawk, including the individual with the vestigial right ovary, were in adult plumage.

Of course there also is the possibility that the presence or absence of a vestigial right ovary is a characteristic that is subject to variation in this species. Or perhaps the right ovary *does* develop in early stages, as in the embryos of the pigeon (*Columba livia domestica*) and the sparrow (*Passer domesticus*) reported upon by Kummer-

Other female hawks examined to date exhibited unilateral development of the ovaries. These were two adult specimens of the Northern Red-shouldered Hawk (*Buteo l. lineatus*), both in adult plumage. In addition, one adult female Turkey Vulture (*Cathartes aura septentrionalis*) also proved to have but one ovary, the left.

A number of female owls, all of which were adults, were examined, and in all cases these individuals had but one ovary, the left. There were no indications of right ovaries, even in vestigial form. The list is as follows.

Barred Owl (*Strix v. varia*)—2 specimens.
Great Horned Owl (*Bubo v. virginianus*)—2 specimens.
Snowy Owl (*Nyctea nyctea*)—2 specimens.
Western Horned Owl (*B. v. pallescens*)—1 specimen.
Screech Owl (*Otis asio*)—1 specimen.
Richardson's Owl (*Cryptoglaux funerea richardsoni*)—1 specimen.

As far as this evidence goes, it indicates that unilateral development of the ovaries is characteristic among adult females of the owl group.

Perhaps it is worthy of note that in all of the species referred to Krummerlöwe,[3] and that there is progressive tendency toward reduction of these structures as development proceeds. It is suggested that the degree of reduction at any age might be subject to individual variation. At any rate, we are unable to generalize upon the basis of the data now at hand.

Meanwhile Snyder[4] has reported finding "paired ovaries" in one specimen of *Buteo borealis*.
above, there appeared to be but one oviduct, the left. The funnel of this oviduct opened adjacent to the mesentery on the ventral surface of the anterior lobe of the left kidney. From this point the oviduct extended posteriorly, held in place by the mesentery, to join the middle compartment of the cloaca (urodaeum).

Kummerlöwe's[5] more recent studies reveal that bilateral ovaries are developed during embryonic life in *Accipiter nisus* and that this condition also appears in the adult female. He reports bilateral ovaries in young females of *Accipiter gentilis* (L.), *Falco tinnunculus* (L.), and in an adult *Falco peregrinus* Tunst. (the right ovary probably could be called vestigial in this case). Snyder[6] has added to our data

[3]Krummerlöwe, Hans. 1930. Vergleichende untersuchungen über das gonadensystem weiblicher vögel, Teil I und II. Zeitschrift für mikroskopisch-anatomische Forschung, Bd. 21, Heft 1/3. und Bd. 22, Heft 1/3.
[4]Snyder, L. L. 1931. The Auk, Vol. 48, N. S. No. 1, p. 117.
[5]Ibid., 1931, pp. 570-613.
[6]Ibid., pp. 147-148.

upon this subject the observation of bilateral ovaries in another specimen of the Marsh Hawk (*Circus hudsonius*), "approximately" thirty specimens of the Sharp-shinned Hawk (*Accipiter velox*), "fewer" specimens of Cooper's Hawk (*Accipiter cooperi*) and one specimen each of the Red-tailed Hawk (previously noted), the Broad-winged Hawk (*Buteo platypterus*), and the Sparrow Hawk (*Falco sparverius*).

In so far as the evidence now available is concerned, it is apparent that bilateral ovaries occur in adult female hawks of certain species. Apparently this condition is common or even usual in some species and less common or rare in others. The relative size of the right ovary, when it is represented, appears to vary among different species. It would seem that both European and North American members of the genus *Accipiter* frequently exhibit bilateral ovaries in the adult condition, but certainly this condition is by no means confined to the genus *Accipiter*. In none of the nine adult female owls (five species) examined by the writer was any indication of bilateral development of the ovaries found.

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A LETTER TO THE GAME OFFICIALS OF THE STATE OF CONNECTICUT

BY MYRON E. STORY

The open duck season of the year 1933 is now a thing of the past and, as the result of my experience and observations, I am prompted to make a few comments about conditions in general, which I ask you to consider carefully as coming from a duck hunting sportsman, who is primarily interested in the saving of wild fowl from extermination and not "killing the limit" each time he goes after ducks.

My duck hunting is done in the territory near the mouth of the Connecticut River, in the vicinity of such places as Essex, Saybrook, and Great Island, and it is the "black duck" or "dusky mallard" to which my comments apply. The territory mentioned is typical of every other place on our coast where these ducks are found, and my statements will apply in general to all such places.

A few days before the season opened in October, I visited Great Island for the purpose of discovering where the ducks were most numerous and, although the Island has been so thoroughly drained that all of the old "saltholes" are now perfectly dry and the place is not nearly so attractive to the birds as it used to be, I found a generous supply of local ducks in the creeks on the Island. The birds were very

tame and unafraid and I found it possible to stalk a number of bunches of ducks in the creeks and approached some of them to within a very few yards before they took flight.

The first day of the open season (Monday) I found many groups of hunters in place, bright and early, and *live* decoys formed a part of the equipment of nearly every outfit. The shooting started at 11:40 A. M. and the poor birds were murdered unmercifully from then until dark, as they were tame and bewildered, and could not resist the lure of the live callers.

You know, of course, that the duck hunter who uses live decoys is almost invariably after his "limit" and he shoots all of the ducks he can while they are at rest on the water, and if he can kill several on the water with one shot he is greatly elated, and it frequently happens that he is able to do just that. The slaughter continued unabated during the week and when I again visited the place, the following Saturday afternoon, I saw very few ducks, probably about a dozen in all, and they were very wild.

I have been to the same place several times since then and have seen and shot very few ducks during the season (not more than three in any one day and some days not any; I do not use live decoys). Two of the days in particular were ideal as to weather but still the birds did not appear and I saw only six on one of those two days.

The last day of the season I talked with a member of one party who were hunting over live decoys, and he remarked how difficult it was for him to give away the birds he shot. That will just give you an idea how the man with live decoys will keep after the ducks even though he has no use for them.

My observations indicate that very few ducks came to us from the north, and it is my opinion that practically all of the ducks shot in our marshes this year were locally hatched and reared; thanks to the work of your Department in planting wing clipped birds for breeders last spring.

There is one conclusion to be drawn from the above and it is this: ducks are very scarce! Probably you have heard reports indicating that the ducks are plentiful, and some duck hunters do make that statement but, if they know anything about the matter, they know that it is not a fact, and they simply tell that tale in order to keep the season open and the limit high. All the talk about drought, disease, and vermin is partly true and, no doubt, the ducks would be more numerous the first of the season if we could completely control those things, but in the last analysis it is the *gun* and *live decoys* that are causing the rapid extermination of the black duck.

If this bird is to survive two things must be done now, and I call on you in the name of all sportsmen who are interested in preserving a reasonable amount of duck hunting for future years, to prohibit absolutely the use of live duck decoys and to limit the kill of each hunter to not more than four per day and twenty in the season.

The Grand Old State of Connecticut should take pride in being the first state to lead off in a movement to save the ducks and with such a leader the States of Maine, Massachusetts, Rhode Island, New York, and New Jersey would be glad to follow. Rigid enforcement of such restrictions would result in the rapid increase in the number of ducks and in three years' time they would be with us again in great numbers, and they would stay with us, if the restrictions were not removed.

Of course, you will say at once that if an attempt is made to enact laws to fix such restrictions the opposition will prove too great and that it can not be done. It is true that strong opposition would immediately develop from all commercial interests involved in duck killing, including some duck hunting clubs, but what of it? Such interests have had the upper hand long enough and I know that every sportsman worthy of the name would be in favor of a much smaller bag limit than the present one, and every duck hunter interested in saving the ducks, who has witnessed the slaughter resulting from the use of live decoys, would be in favor of prohibiting the use of them.

All the talk about "studying the situation" and the effort to obtain money at this time for that purpose is purely bunk; the ducks need real protection now and the only way to protect them is to stop nearly all or perhaps all of the killing at once, then nature will do the rest.

If the duck stamp tax idea should pass and the money thus obtained could be used to restore drained marshes, which were once duck breeding and feeding areas, it would no doubt help the duck crop wonderfully, if there are any ducks left to help when the drained areas are restored, but there will be no ducks left if we do not stop shooting them this year! The restoration of drained marshes will take years and the ducks can't wait.

It is a lamentable fact that a heavy percentage of the men who kill ducks consists of a class of men who are after ducks and dollars, regardless of anything else, and their voices have made more noise than ours in the past, but it is time that the Conservationists and the ducks now have all of the attention, and we look to you to make sure that the duck has this attention before the opening of the 1934 duck hunting season.

Hartford, Connecticut.

FURTHER ADDITIONS TO THE LIST OF BIRDS VICTIMIZED BY THE COWBIRD

BY HERBERT FRIEDMANN[1]

In a previous paper[2] I brought up to date (1931) what was known of the various birds parasitized by the cowbirds, as first presented in my book ("The Cowbirds", 1929). Since then I have gathered together a large amount of new data, based on unpublished material, chiefly in private collections. The following gentlemen have placed me deeply in their debt for the records they have generously sent to me:

Messrs. C. G. Abbott, San Diego, California; M. C. Badger, Santa Paula, California; Griffing Bancroft, San Diego, California; F. Bradshaw, Regina, Saskatchewan; J. C. Braly, Portland, Oregon; N. K. Carpenter, San Diego, California; H. W. Carriger, Oakland, California; B. W. Cartwright, Winnipeg, Manitoba; C. Cottam, Washington, D. C.; E. J. Court, Washington, D. C.; S. J. Darcus, Penticton, British Columbia; C. E. Doe, Gainesville, Florida; C. L. Field, National City, California; A. D. Henderson, Belvedere, Alberta; A. M. Ingersoll, San Diego, California; Guy Love, Santee, California; A. E. Price, Grant Park, Illinois; L. B. Potter, East End, Saskatchewan; T. E. Randall, Athabasca, Alberta; W. Rowan, Edmonton, Alberta; W. B. Sampson, Piedmont, California; M. Schönwetter, Gotha, Germany; E. E. Sechrist, San Diego, California; C. S. Sharp, Escondido, California; E. M. Tait, Summerland, British Columbia; R. W. Tufts, Ottawa, Ontario; Neal Weber, Grand Forks, North Dakota; L. R. Wolfe, Chicago, Illinois; H. Woodward, San Diego, California; and J. T. Wright, present whereabouts unknown (collecting in Mexico).

A relatively small number of new or interesting records have appeared in publications since January, 1931, and a few have been found in journals not previously available for search. All these have been included and are summarized here.

For convenience in publication, now so restricted everywhere, I have had to limit this paper to the North American species (*Molothrus ater*) alone. It is hoped that similar notes on the other cowbirds may find publication elsewhere.

The following are additions to the list of known victims of the North American Cowbird (all races). They bring the total of host species up to 238, an increase of 29.

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[1]Published by permission of the Secretary of the Smithsonian Institution.
[2]Auk, 1931, pp. 52-65.

Tyrannus vociferans Swainson. Cassin's Kingbird.
Empidonax flaviventris (Baird and Baird). Yellow-bellied Flycatcher.
Nuttallornis mesoleucus (Lichtenstein). Olive-sided Flycatcher.
Psaltriparus minimus minimus (Townsend). Coast Bush-tit.
Toxostoma bendirei (Coues). Bendire's Thrasher.
Turdus migratorius achrusterus (Batchelder). Southern Robin.
Sturnus vulgaris vulgaris Linnaeus. Starling.
Vireo belli arizonae Ridgway. Arizona Vireo.
Vireo solitarius cassini Xantus. Cassin's Vireo.
Vireo philadelphicus (Cassin). Philadelphia Vireo.
Dendroica auduboni auduboni (Townsend). Audubon's Warbler.
Dendroica palmarum palmarum (Gmelin). Western Palm Warbler.
Geothlypis trichas brachydactyla (Swainson). Northern Yellowthroat.
Agelaius phoeniceus arctolegus Oberholser. Giant Red-wing.
Agelaius phoeniceus californicus Nelson. Bicolored Red-wing.
Euphagus carolinus (Müller). Rusty Blackbird.
Piranga ludoviciana (Wilson). Western Tanager.
Pyrrhuloxia sinuata sinuata (Bonaparte). Arizona Pyrrhuloxia.
Guiraca caerulea interfusa Dwight and Griscom. Western Blue Grosbeak.
Guiraca caerulea salicaria Grinnell. California Blue Grosbeak.
Passerina ciris pallidior Mearns. Texas Painted Bunting.
Spinus tristis pallidus Mearns. Pale Goldfinch.
Pipilo maculatus curtatus Grinnell. Nevada Towhee.
Pipilo fuscus mesoleucus Baird. Cañon Towhee.
Passerculus sandwichensis nevadensis Grinnell. Nevada Savannah Sparrow.
Melospiza melodia atlantica Todd. Atlantic Song Sparrow.
Melospiza melodia beata Bangs. Mississippi Song Sparrow.
Melospiza melodia fisherella Oberholser. Modoc Song Sparrow.
Melospiza melodia morphna Oberholser. Rusty Song Sparrow.
Melospiza melodia santaecrucis Grinnell. Santa Cruz Song Sparrow.

From the previous list should be deleted *Guiraca caerulea lazula*, which is now restricted to southern Mexico, and the records of which must now be referred to *G. c. interfusa*.

Several of these new host records are due to the recognition of more subspecies in the Fourth Edition of the A. O. U. Check-List, but the majority are new discoveries.

In addition to these birds, a number of forms previously listed as victims of one race of the cowbird, have since been found to be parasitized by another race as well. Therefore, if we list the victims according to the subspecies of the cowbird, we get the following additions (including those mentioned above):

a. Molothrus ater ater (Boddaert). Eastern Cowbird.
Salpinctes obsoletus obsoletus (Say). Rock Wren.
Turdus migratorius achrusterus (Batchelder). Southern Robin.
Hylocichla fuscescens salicicola Ridgway. Willow Thrush.
Sturnus vulgaris vulgaris (Linnaeus). Starling.
Geothlypis trichas brachydactyla (Swainson). Northern Yellowthroat.
Icteria virens longicauda Lawrence. Long-tailed Chat.
Hedymeles melanocephalus papago Oberholser. Rocky Mountain Grosbeak.
Oberholseria chlorura (Audubon). Green-tailed Towhee.
Pipilo fuscus mesoleucus Baird. Cañon Towhee.
Passerherbulus caudacutus (Latham). Leconte's Sparrow.
Chondestes grammacus strigatus Swainson. Western Lark Sparrow.
Melospiza lincolni lincolni (Audubon). Lincoln's Sparrow.
Melospiza melodia atlantica Todd. Atlantic Song Sparrow.
Melospiza melodia beata Bangs. Mississippi Song Sparrow.

This brings the list of hosts of the Eastern Cowbird from 127 up to 141 forms.

b. Molothrus ater artemisiae Grinnell. Nevada Cowbird.
Tyrannus tyrannus (Linnaeus). Nevada Cowbird.
Sayornis phoebe (Latham). Eastern Phoebe.
Empidonax flaviventris (Baird and Baird). Yellow-bellied Flycatcher.
Empidonax trailli trailli (Audubon). Alder Flycatcher.
Myiochanes richardsoni richardsoni (Swainson). Western Wood Pewee.
Nuttallornis mesoleucus (Lichtenstein). Olive-sided Flycatcher.
Corthylio calendula calendula (Linnaeus). Eastern Ruby-crowned Kinglet.
Vireo olivaceus (Linnaeus). Red-eyed Vireo.
Vireo philadelphicus (Cassin). Philadelphia Vireo.
Vireo gilvus swainsoni Baird. Western Warbling Vireo.
Mniotilta varia (Linnaeus). Black and White Warbler.
Vermivora peregrina (Wilson). Tennessee Warbler.

Dendroica auduboni auduboni (Townsend). Audubon's Warbler.
Dendroica palmarum palmarum (Gmelin). Western Palm Warbler.
Setophaga ruticilla (Linnaeus). Redstart.
Piranga ludoviciana (Wilson). Western Tanager.
Agelaius phoeniceus arctolegus Oberholser. Giant Red-wing.
Icterus galbula (Linnaeus). Baltimore Oriole.
Euphagus carolinus (Müller). Rusty Blackbird.
Carpodacus purpureus purpureus (Gmelin). Eastern Purple Finch.
Spinus tristis pallidus Mearns. Pale Goldfinch.
Pipilo maculatus curtatus Grinnell. Nevada Towhee.
Passerculus sandwichensis nevadensis Grinnell. Nevada Savannah Sparrow.
Junco hyemalis hyemalis (Linnaeus). Slate-colored Junco.
Zonotrichia albicollis (Gmelin). White-throated Sparrow.
Melospiza melodia fisherella Oberholser. Modoc Song Sparrow.
Melospiza melodia morphna Oberholser. Rusty Song Sparrow.

This increases the list of victims of the Nevada Cowbird by 27 forms to a total of 82 in all.

c. Molothrus ater obscurus (Gmelin). Dwarf Cowbird.

Although the last edition of the A. O. U. Check-List recognizes the California Cowbird (*Molothrus ater californicus* Dickey and van Rossem) as valid, I still adhere to my former opinion that it is too poorly characterized a race to be worthy of nomenclatural distinction. I still consider it the same as the Dwarf Cowbird (*M. a. obscurus*) and so in this paper it is merged with the latter race.

Tyrannus vociferans Swainson. Cassin's Kingbird.
Psaltriparus minimus minimus (Townsend). Coast Bush-tit.
Toxostoma bendirei (Coues). Bendire's Thrasher.
Vireo belli arizonae Ridgway. Arizona Vireo.
Vireo solitarius cassini Xantus. Cassin's Vireo.
Compsothlypis americana americana (Linnaeus). Parula Warbler.
Agelaius phoeniceus californicus Nelson. Bicolored Red-wing.
Pyrrhuloxia sinuata sinuata (Bonaparte). Arizona Pyrrhuloxia.
Guiraca caerulea interfusa Dwight and Griscom. Western Blue Grosbeak.
Guiraca caerulea salicaria Grinnell. California Blue Grosbeak.
Passerina ciris pallidior Mearns. Texas Painted Bunting.
Carpodacus mexicanus frontalis (Say). House Finch.
Melospiza melodia santaecrucis Grinnell. Santa Cruz Song Sparrow.

The victims of the Dwarf Cowbird now total 87 forms (an increase of 13).

In the following annotated list are included only forms, the status of which, with respect to the cowbirds, has been altered by recent discoveries.

Coccyzus americanus americanus (Linnaeus). YELLOW-BILLED CUCKOO. The single record, still unique, was known to me only by virtue of the fact that Bendire included this cuckoo in his list of victims of the cowbird. In my book (p. 206) I wrote that inasmuch as no parasitized set of Yellow-billed Cuckoo's eggs was ever in the U. S. National Museum, it was probable that Bendire got his record from a correspondent. This I have been able to verify recently. Among some of Bendire's papers I found a letter from W. E. Loucks of Peoria, Illinois, in which Loucks writes that he found the nest in question. Although he does not say where or when he found it, it is likely that the locality was somewhere near Peoria where most of his field work was done.

Tyrannus tyrannus (Linnaeus). EASTERN KINGBIRD. The parasitized nest of this species from near Wahpeton, North Dakota, mentioned in my book (p. 207) involves the Nevada Cowbird, not the eastern race as there intimated. To the very few records of parasitism of the kingbird may be added five more, a set of three eggs of the kingbird and one of the Eastern Cowbird, found at Glocester, Rhode Island, June 12, 1919, and now in the C. E. Doe collection in the Florida State Museum. Mr. T. E. Randall found a parasitized nest in Alberta and Mr. S. J. Darcus a similar nest in Saskatchewan (Nevada Cowbird involved). Mr. A. M. Ingersoll found a parasitized nest at Ithaca, New York. Mr. Guy Love found a victimized nest in Decatur County, Kansas.

Tyrannus vociferans Swainson. CASSIN'S KINGBIRD. A nest with three eggs of the Cassin's Kingbird and two of the Dwarf Cowbird, found in the Santa Rita Mountains, Arizona, June 29, 1884, is now in the C. E. Doe collection in the Florida State Museum. This is the only record I know of for this species.

Myiarchus crinitus boreus Bangs. NORTHERN CRESTED FLYCATCHER. Mr. E. J. Court tells me that he once found a cowbird's egg in a nest of this species in Charles County, Maryland. Previously I knew of but one such instance—in Massachusetts.

Sayornis phoebe (Latham). EASTERN PHOEBE. Previously recorded as an abundantly victimized host of the Eastern Cowbird, it

is now known to act in this capacity for the Nevada Cowbird as well. Mr. T. E. Randall found two parasitized nests in Alberta.

Empidonax flaviventris (Baird and Baird). YELLOW-BELLIED FLYCATCHER. Three records. Mr. T. E. Randall found two parasitized nests and Mr. A. D. Henderson found one, all in Alberta.

Empidonax trailli trailli (Audubon). ALDER FLYCATCHER. The Alder Flycatcher is a new host for the Nevada Cowbird. Mr. T. E. Randall found two victimized nests in Alberta; Mr. E. M. Tait found two more near Trout Creek Point, British Columbia. The Alder Flycatcher is so rarely recorded as a molothrine victim that the following instances may be of interest. Mr. S. J. Darcus found a nest with four eggs of the flycatcher and one of the Eastern Cowbird, at Fredericton, New Brunswick, June 14, 1912. Mr. A. M. Ingersol writes me that he once found a nest of this flycatcher with a cowbird's egg in it.

Empidonax trailli brewsteri Oberholser. LITTLE FLYCATCHER. Mr. E. E. Sechrist found two parasitized nests near San Diego, California; Mr. C. H. Woodward found two others in Mission Valley, San Diego County.

Empidonax minimus (Baird and Baird). LEAST FLYCATCHER. Racey (*Murrelet*, xi, 1930, p. 70) found a nest of the Least Flycatcher with three eggs of the owner and one of the Nevada Cowbird at Peace River Block, British Columbia. The relatively few previous records of parasitism on this species were all from the territory of the United States. Mr. T. E. Randall found a parasitized nest in Alberta.

Myiochanes richardsoni richardsoni (Swainson). WESTERN WOOD PEWEE. Not previously recorded as a host of the Nevada Cowbird. Mr. T. E. Randall found four victimized nests in Alberta, and Mr. E. M. Tait found one at Trout Creek Point, British Columbia.

Nuttallornis mesoleucus (Lichtenstein). OLIVE-SIDED FLYCATCHER. One record. Mr. A. D. Henderson writes me that he collected a nest of this bird containing three eggs of the flycatcher and one of the Nevada Cowbird, on June 27, 1925, near Belvedere, Alberta.

Pyrocephalus rubinus mexicanus Sclater. VERMILION FLYCATCHER. To the few previously recorded cases may be added two others: 1. A parasitized nest found by Mr. A. M. Ingersoll at Phoenix, Arizona. This nest contained an addled egg of the Dwarf Cowbird and some young flycatchers. 2. A nest found near Tucson, Arizona, by Mr. N. K. Carpenter.

Otocoris alpestris leucolaema (Coues). DESERT HORNED LARK. To the single previous record may be added two more, a parasitized nest found in Alberta by Mr. T. E. Randall, and another, with three

eggs of the lark and one of the Nevada Cowbird, found at Cypress Hills, Saskatchewan, June 8, 1920, by Mr. S. J. Darcus.

Otocoris alpestris praticola (Henshaw). PRAIRIE HORNED LARK. I had previously considered this bird as a relatively uncommon host of the cowbird. However, Mr. A. E. Price, of Grant Park, Illinois, writes me that it is commonly parasitized. "Nests made in a hill of corn at any time in June are frequently found containing cowbird's eggs. I have found as many as four cowbirds in one nest." Pickwell (Trans. Acad. Sci., St. Louis, vol. 27, 1931, pp. 106-109) has given some very valuable data on the Prairie Horned Lark as a molothrine host. Out of thirty-two nests found by him only one was parasitized. His account does not include any records of other observers.

Auriparus flaviceps flaviceps (Sundevall). ARIZONA VERDIN. To the few recorded instances of this bird acting as a molothrine host we may add that Mr. E. J. Court found the Dwarf Cowbird parasitizing the verdin in southern Texas.

Psaltriparus minimus minimus (Townsend). COAST BUSH-TIT. One record. Mr. H. W. Carriger found a parasitized nest of this bird at Irvington, Alameda County, California, May 15, 1932. It contained eight eggs of the bush-tit and one of the Dwarf Cowbird. There were minute punctures in two of the bush-tit's eggs.

Psaltriparus minimus californicus Ridgway. CALIFORNIA BUSH-TIT. A second record has come to my notice. Ashworth and Thompson (*Oologist*, vol. 47, 1930, pp. 122-124) report an egg of the Dwarf Cowbird from a nest of this bird in Ventura County, California, March 29.

Sitta carolinensis carolinensis Latham. WHITE-BREASTED NUTHATCH. I knew of three instances before; now another one has come to my attention, a set of six eggs of the nuthatch and one of the Eastern Cowbird, collected May 5, 1912, at State College, Pennsylvania, by R. C. Harlow, and now in the collection of Mr. H. W. Carriger. Thus, two of the four records come from State College, both found by Mr. Harlow.

Chamaea fasciata henshawi Ridgway. PALLID WREN-TIT. A third record has recently come to my attention, a parasitized nest found in San Diego County, California, by Mr. N. K. Carpenter.

Thryothorus ludovicianus ludovicianus (Latham). CAROLINA WREN. In view of the paucity of records of this bird as a molothrine victim, it is of interest to note that in Oklahoma it may be more commonly parasitized than elsewhere. Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 136) lists four parasitized nests from Copan

and Vinita, these four comprising one-fourth of the nests found there.

Salpinctes obsoletus obsoletus (Say). ROCK WREN. To the single previous record may be added the following:

Captain L. R. Wolfe writes me that he collected a set of four eggs of the wren and two of the cowbird in Decatur County, Kansas, June 17, 1914, and now in his collection. Herr Schönwetter also informs me that he has a set of three eggs of the wren and one of the cowbird, taken in Kansas, May 12, 1913. Mr. Guy Love informs me that he collected twelve parasitized sets of this wren in Decatur County, Kansas, so it appears that the species is frequently victimized there. All these cases refer to *M. a. ater* and are the first ones for that race of the cowbird.

Mimus polyglottos polyglottos (Linneaus). EASTERN MOCKINGBIRD. To the one record previously known to me (from Arkansas) may be added another. Mr. E. J. Court informs me that he found an egg of the Eastern Cowbird in a nest of the mockingbird in St. Mary's County, Maryland.

Mimus polyglottos leucopterus (Vigors). WESTERN MOCKINGBIRD. To the little previously recorded in my book (p. 252) of this host, may be added the following:

Oldright (The Ornith. and Ool. Semi-Annual, vol. 2, No. 2, July, 1890, pp. 33, 34) lists a set of three eggs of the mockingbird and one of the Dwarf Cowbird and writes that, ". . . Dwarf Cowbirds' eggs . . . are but seldom found in the 'Mocker's' nest, but this year several were found." Mr. E. J. Court found this bird parasitized by the Dwarf Cowbird near San Antonio, Texas.

Toxostoma rufum (Linnaeus). BROWN THRASHER. To the seven definite records may be added three more, all from Oklahoma—a new region in this connection. Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 140) records them as follows: A nest with four eggs of the thrasher and one of the cowbird, from Copan, May 9; a set of five eggs of the thrasher and one of the cowbird, from Tulsa; a nest with three eggs of the thrasher and one of the cowbird, also from Tulsa.

Toxostoma bendirei (Coues). BENDIRE'S THRASHER. One record. A set of three eggs of the thrasher and one of the Dwarf Cowbird, collected by E. A. Mearns near Red Rock, Arizona, April 3, 1885, now in the U. S. National Museum.

Toxostoma curvirostre oberholseri Law. BROWNSVILLE THRASHER. The single record of this species previously known must be referred to this recently described race.

Turdus migratorius achrusterus (Batchelder). SOUTHERN ROBIN. Two records: Kirkwood (Trans. Maryland Acad. Sci., vol. 1, 1895, p. 322) found a nest of the Southern Robin in Maryland, on May 21, 1893, containing two eggs of the Eastern Cowbird in addition to three of the robin. Neff (Oologist, vol. 43, 1926, p. 149-151) found a parasitized nest in the Ozark Mountains, Missouri.

Hylocichla fuscescens salicicola Ridgway. WILLOW THRUSH. To the three records mentioned in my book (p. 258) may be added several others. Schorger (Trans. Wisc. Acad. Sci., Arts, and Letters, vol. 26, 1931, p. 39) found a nest of this bird in Bayfield County, Wisconsin, containing two eggs of the thrush and five of the cowbird. These constitute the first records for the Eastern Cowbird; the previous cases involved the Nevada Cowbird only. Mr. B. W. Cartwright found a nest of this thrush near Winnipeg, Manitoba, June 18, 1932, containing five cowbirds' eggs and one of the thrush. The cowbirds' eggs were laid by two different individuals, judging by their size and coloration. Mr. E. M. Tait found a parasitized nest at Trout Creek Point, British Columbia.

Sialia sialis sialis (Linnaeus). EASTERN BLUEBIRD. Seven additional records have come to my notice, ranging from Rhode Island to Oklahoma. Although the bluebird is still to be considered a rather infrequent victim of the cowbird, it is by far the most often parasitized of hole-nesting birds.

Polioptila melanura melanura Lawrence. PLUMBEOUS GNATCATCHER. Another record of this little known victim has been brought to my notice, a set of one egg of the host and two of the Dwarf Cowbird, found by Clyde L. Field, at Calixico, California, April 18, 1916. Still others—two sets from Santa Eulalia, Chihuahua, and Guaymas, Sonora, Mexico (G. Bancroft).

Polioptila melanura californica Brewster. BLACK-TAILED GNATCATCHER. Previously known from one record, two more may be added now. Mr. Clyde L. Field found a parasitized nest at National City, California, April 24, 1929, and Mr. N. K. Carpenter found a similar nest in San Diego, County, California.

Corthylio calendula calendula (Linnaeus). EASTERN RUBY-CROWNED KINGLET. Previously recorded a single time as a victim of the Eastern Cowbird, this kinglet is now known to serve as a host of the Nevada Cowbird as well. Mr. A. D. Henderson found a parasitized nest near Belvedere, Alberta.

Bombycilla cedrorum Vieillot. CEDAR WAXWING. Previously I had but one record of this form as a victim of the Nevada Cowbird.

A second one, a parasitized nest found in Alberta by Mr. T. E. Randall, has now come to my notice; and a third, a similar nest found at Trout Creek Point, British Columbia, by Mr. E. M. Tait.

Sturnus vulgaris vulgaris (Linnaeus). STARLING. One record. Mr. E. J. Court informs me that Mr. A. H. Hardisty found a cowbird's egg in a nest with eggs of the Starling near Beltsville, Maryland.

Vireo atricapillus (Woodhouse). BLACK-CAPPED VIREO. Previously recorded but once as a victim of the Eastern Cowbird (and several times as a host of the Dwarf Cowbird), this vireo is known to be occasionally victimized by *M. ater ater* in Oklahoma, according to Mrs. Nice (Birds of Oklahoma, revised ed., 1931, p. 150), who lists three instances.

Vireo griseus griseus (Boddaert). WHITE-EYED VIREO. Mr. S. J. Darcus found two parasitized nests at Fredericton, New Brunswick, in May, 1909, and 1910. These are of interest because of the far northeastern locality.

Vireo huttoni huttoni Cassin. HUTTON'S VIREO. To the few previously listed instances may be added two more records, a nest with four eggs of the vireo and one of the Dwarf Cowbird, and a nest containing one large young cowbird, both found by Mr. H. W. Carriger near Oakland, California.

Vireo belli arizonae Ridgway. ARIZONA VIREO. This subspecics is now officially recognized in the last edition of the A. O. U. Check-List (p. 276). In my book (p. 238) I wrote that the Arizona records there given would have to be referred to this race if it should be considered valid. Two additional records have come to my notice, a parasitized nest found near Tucson, Arizona, by Mr. N. K. Carpenter, and one found near Oracle, Arizona, by Mr. Clyde L. Field.

Vireo belli pusillus Coues. LEAST VIREO. To the little previously recorded by me may be added three parasitized nests found in Mission Valley, San Diego County, California, by Mr. C. H. Woodward and Mr. E. E. Sechrist, and another found by Mr. N. K. Carpenter, also in San Diego County. Mr. Carpenter writes that it is now difficult to find a nest of this bird without one or more eggs of the cowbird, although the parasite was unknown in San Diego County thirty years ago.

Vireo solitarius plumbeus Coues. PLUMBEOUS VIREO. A second record has come to my attention. Mr. Alex Walker found a nest with three eggs of the vireo and one of the Dwarf Cowbird at an elevation of 5400 feet in Montezuma Canyon, Huachuca Mountains, Arizona, June 15, 1932.

Vireo solitarius cassini Xantus. CASSIN'S VIREO. Mr. W. B. Sampson writes me that he found a nest of this bird with two eggs of the vireo and one of the Dwarf Cowbird, four miles east of Milton, San Joaquin County, California, May 30, 1932. This is the first record of this vireo as a cowbird host.

Vireo olivaceus (Linnaeus). RED-EYED VIREO. Mr. T. E. Randall found three victimized nests in Alberta. These are the first definite records for this species as a victim of the Nevada Cowbird known to me. Mr. S. J. Darcus found this vireo to be a host of the Eastern Cowbird at Fredericton, New Brunswick, close to the northern limit of the cowbird's range (two records).

Vireo philadelphicus (Cassin). PHILADELPHIA VIREO. Mr. T. E. Randall found a nest of this bird with a cowbird's egg in Alberta. It is the only record for this species.

Vireo gilvus swainsoni Baird. WESTERN WARBLING VIREO. A parasitized nest found in Alberta, by Mr. T. E. Randall, is the first definite record for this bird as a host of the Nevada Cowbird. Mr. E. M. Tait found three victimized nests at Trout Creek Point, British Columbia. Mr. H. W. Carriger writes me that he found a nest of this vireo with two eggs of the vireo and one of the Dwarf Cowbird near Oakland, California, June 2, 1929. This is the second record known to me of this vireo with Dwarf Cowbird eggs. A third is a parasitized nest found in San Diego County, California, May 26, 1921, now in Mr. G. Bancroft's collection.

Mniotilta varia (Linnaeus). BLACK AND WHITE WARBLER. Not previously known as a victim of the Nevada Cowbird. Mr. T. E. Randall found a parasitized nest in Alberta.

Vermivora peregrina (Wilson). TENNESSEE WARBLER. Mr. T. E. Randall collected a parasitized nest in Alberta. This is the first record for this warbler as a victim of the Nevada Cowbird. Previously it was known as a victim of the Eastern Cowbird on one record.

Vermivora ruficapilla ruficapilla (Wilson). NASHVILLE WARBLER. A sixth record has come to my attention, a set now in the U. S. National Museum, collected at Holland Patent, New York, June 2, 1888.

Compsothlypis americana americana (Linnaeus). PARULA WARBLER. Mr. H. P. Attwater collected a set of one egg of the warbler and one of the Dwarf Cowbird in Kerr County, Texas, May 10, 1895. This is the first record for this warbler as a host of the Dwarf Cowbird. This set is now in the U. S. National Museum.

Compsothlypis americana pusilla (Wilson). NORTHERN PARULA WARBLER. To the few previous records from New York, New Jersey,

Connecticut, and Pennsylvania, may be added two others, from Oklahoma, recorded by Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 157).

Dendroica aestiva aestiva (Gmelin). EASTERN YELLOW WARBLER. This is reported to be a very common victim of the Nevada Cowbird in Alberta by Rowan and Randall (in litt.) and in British Columbia by Tait and Darcus. If the western form of the Yellow Warbler (*D. a. morcomi*) is recognized in the future, these records will have to be considered as of that race.

Dendroica aestiva brewsteri Grinnell. CALIFORNIA YELLOW WARBLER. One additional record, a set found in San Diego County, California, by Mr. N. K. Carpenter.

Dendroica caerulescens caerulescens (Gmelin). BLACK-THROATED BLUE WARBLER. The late Dr. W. L. Ralph collected three parasitized sets of this warbler in New York State. They are now in the U. S. National Museum. These bring the total number of records up to six.

Dendroica coronata (Linnaeus). MYRTLE WARBLER. Besides the two definite records previously listed, a third one has come to my notice. C. H. Morrell collected a set of one egg of the warbler and three eggs of the cowbird at Pittsfield, Maine, May 26, 1891. This set is now in the U. S. National Museum.

Dendroica cerulea (Wilson). CERULEAN WARBLER. Previously I knew of seven cases of parasitism of this warbler. To these may be added two more, as follows: a set of two eggs of the warbler and two of the cowbird collected at Saginaw, Michigan, June 23, 1900, by R. A. Brown; and a set of three eggs of the warbler and one of the cowbird, taken in Beaver County, Pennsylvania, by W. E. C. Todd. Both sets are in the U. S. National Museum.

Dendroica auduboni auduboni (Townsend). AUDUBON'S WARBLER. Mr. E. M. Tait found this warbler to be parasitized by the Nevada Cowbird at Trout Creek Point, British Columbia. It is the first record for the species.

Dendroica discolor discolor (Vieillot). PRAIRIE WARBLER. This is one of those cases where recorded literature is misleading. In my book (p. 246) on the basis of published data, I wrote that this warbler is a very uncommon victim of the Eastern Cowbird. However, correspondence and conversation with several experienced and reliable egg collectors indicate that in localities where the warbler occurs it is a very frequently parasitized species. It has been recorded as a molothrine victim west as far as Arkansas (my previous data were all from the eastern seaboard states).

[To be continued]

THE BIRDS OF BERLIN AND HARWOOD TOWNSHIPS, CASS COUNTY, NORTH DAKOTA

BY GALE W. MONSON

The following paper represents eight years' work in the field, from January, 1925, to December, 1932. Of these years, 1927, 1928, 1929, and 1930 were characterized by particularly intensive work. During the last two of the eight years, 1931 and 1932, really close observational work was confined to the summer months, although sufficient time was spent in the field the remainder of the year to acquire representative migrational data. The migration records for practically the whole period, 1925-1932, are very complete, the writer being in the field on the majority of the days, his observations as a rule taking place in a comparatively small area of two to three square miles within the area considered, that of Berlin and Harwood Townships in Cass County, North Dakota.

Complete daily records, including a list of birds seen, are available for the entire period. In addition, a day's bird census, taken eleven times a year and covering about three square miles within whose boundaries are representative physiographic and floral conditions of the two townships, contributes much in extending migration dates and in giving the writer a good idea of the relative abundance of different species at various times of the year. Bird-banding work carried on during the last two years has also helped enlarge the writer's data.

None of the records presented in this paper are based on collected specimens, field observation being the only source. A pair of twelve-power Astra binoculars has given valuable assistance in this respect, together with various bird-lists and ornithological books, such as Taverner's "Birds of Western Canada", Chapman's "Handbook of the Birds of Eastern North America", Bent's "Life Histories of North American Birds", and Roberts' "The Birds of Minnesota". Larson's "Birds of Eastern McKenzie County, North Dakota" (WILSON BULLETIN, March, 1926) and Williams's "Birds of the Red River Valley of Northeastern North Dakota" (WILSON BULLETIN, March and June, 1926), have proven valuable in comparative studies.

The seventy square miles, more or less, comprising the two townships consist almost entirely of cultivated farm land. The land is a part of the flat Red River Valley, once the bottom of glacial Lake Agassiz, with an elevation of approximately 900 feet above sea level. The Red River borders the eastern side of Harwood Township, with the Sheyenne River emptying into it in the northeastern part of the

township. The Sheyenne flows north through the midwestern part of Harwood Township before turning east to empty into the Red River. These two rivers are narrow, winding, often sluggish streams, seldom exceeding fifty feet in width, and cutting no depressions of any consequence, their high water level being only a few feet below the level of the surrounding country.

The average annual rainfall is slightly more than twenty inches. The summers are warm, temperatures of over 90° not being uncommon, and the winters cold, the mercury frequently sinking to 20° F. below 0° F., rarely to 30° below. Prevailing winds are northwest and southeast.

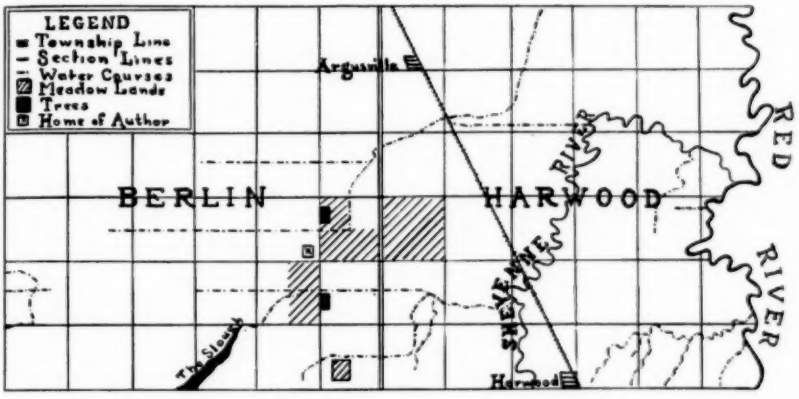
Much of the observational work has been done in the low meadow lands of two and a half square miles' area immediately adjoining the writer's home. Part of these are virgin prairie, being too low to have any practical value as farm land. The plant growth of these meadows consists mainly of Kentucky blue grass (*Poa pratensis*), false red-top (*Poa palustris*), timothy (*Phleum pratense*), cord grass (*Spartina michauxiana*), and the various sedges (*Carex* spp.). Among the more common herbs are Indian hemp (*Apocynum hypericifolium*), narrow-leaved sunflower (*Helianthus maximiliani*), prairie asters (*Aster multiflorum* and *A. paniculatus*), Canada goldenrod (*Solidago canadensis*), white sage (*Artemisia ludoviciana*), dandelion (*Taraxacum taraxacum*), and wolfberry (*Symphoricarpos occidentalis*). There are occasional patches of willows (*Salix discolor, S. petiolaris, S. interior, S. cordata*) in the wetter places. In ordinary years, over half of these meadow lands are mown for hay, but are not pastured.

The survival of an area of natural grassland in a region so completely under the plow is unusual. Were it not present, species such as the Marbled Godwit, the Upland Plover, the Sprague's Pipit, and the Baird's and Leconte's Sparrows would not be found, while Bobolinks, Western Meadowlarks, Prairie Hens, and Savannah and Grasshopper Sparrows are much more common because of it. Due to the fact that the writer has spent so much time in these meadows, they have had a more significant influence upon his data than perhaps any other portion of the two townships.

Tree growth in the townships consists of a few acres on every farmstead and scattered "tree claims", species most commonly planted being boxelder (*Acer negundo*), cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), and golden willow (*Salix vitellina*). Along the Red and Sheyenne Rivers are narrow fringes of timber, consisting for the most part of elm (*Ulmus americana*), boxelder, green ash, bur oak (*Quercus macrocarpa*), peach-leaved willow

(*Salix amygdaloides*), basswood (*Tilia americana*), and choke cherry (*Prunus virginiana*). Tree growths, though forming a very small part of the area under consideration, are, however, important as centers of bird life.

There are no permanent bodies of water in the two townships, aside from the Red and Sheyenne Rivers. During the spring months and following heavy rains, much of the farm land may be covered by water, especially the above-mentioned meadowlands, where the water has a tendency to remain longer than elsewhere. A low area a mile long and from one to two hundred feet wide in the south central part of Berlin Township, known locally as "The Slough", usually contains water from March to July or August, forming a small center for water birds. During wet summers, favorable spots for water birds can be



found over the entire area, particularly in the meadowlands. As a rule, however, all traces of standing water have gone by the middle of August, resulting in a dearth of autumn records for water birds. The fall of 1928 stands out as an exception, when heavy rains in late August and September caused much of the land to lie under a few inches of water.

This lack of any permanent bodies of water in the region, again excepting the Red and Sheyenne Rivers, is naturally a considerable deterrent to the observation of water birds. The writer has no doubt that his list of birds would be extended fifteen or twenty species or more if there were such a body of water present. It would also result in more accurate data on water birds, especially in the fall. That there would be water birds present in the fall if such were the case is shown by the large numbers that appeared in the fall of 1928.

With reference to the occurrence of certain species of birds, the influence of the Red and Sheyenne Rivers is not to be disregarded, the water present at all times of the year bringing about the presence of such birds as the Spotted Sandpiper and the Belted Kingfisher, and the continuous, often unpastured woodland along the rivers resulting in favorable nesting conditions for such birds as the Sharp-shinned Hawk, the Great Horned Owl, the Ruby-throated Hummingbird, the Yellow-bellied Sapsucker, the Downy and Hairy Woodpeckers, the Crested Flycatcher, the Blue Jay, the White-breasted Nuthatch, the Chickadee, the Red-eyed Vireo, the Indigo Bunting, and the Rose-breasted Grosbeak.

The writer again wishes to call attention to the fact that the type of field work which enabled him to gather the data summed up in this paper has been very persistent and very localized (about ninety per cent within an area of three square miles). Because of this, he feels that this one differs from most bird lists, which as a rule cover a far larger territory and do not represent a continual and unbroken period of observation in the field.

The writer also wishes to acknowledge his indebtedness to Prof. O. A. Stevens, of North Dakota State College, without whose counsel and encouragement this paper would not have been written.

The following annotated list of birds, in which special attention is paid to migratory data, contains 187 named forms. The nomenclature used is that of the A. O. U. Check-List of North American Birds, Fourth Edition. The names of subspecies are as given in Roberts' "The Birds of Minnesota", since the locality treated in this paper would be expected to contain the same subspecies as are found in Minnesota.

Horned Grebe. *Colymbus auritus.* Rare; two records, September 29, 1926, and April 24, 1927.

Pied-billed Grebe. *Podilymbus podiceps podiceps.* Rare, seen only in wet fall of 1928, August 30 to September 15.

Great Blue Heron. *Ardea herodias herodias.* Occasionally seen flying over, evidently between the Red and Sheyenne Rivers and the Slough, and, in late summer, along the Red and Sheyenne Rivers. Three spring records, May 8, 1926, April 24, 1927, and May 11, 1930. Scattered records for fall, earliest July 3, 1929, latest October 8, 1926.

Black-crowned Night Heron. *Nycticorax nycticorax hoactli.* Rare, one date only, August 22, 1932, when two immature birds flew into the farmyard trees.

American Bittern. *Botaurus lentiginosus.* Fairly common summer resident, varying in numbers according to wetness of year. Earliest

arrival, April 20, 1929, average April 29. Latest departure October 21, 1928.

Eastern Least Bittern. *Ixobrychus exilis exilis.* Rare, one seen June 10, 1930, at the Slough.

Whistling Swan. *Cygnus columbianus.* Rare, one flock seen flying over on October 18, 1930.

Common Canada Goose. *Branta canadensis canadensis.* Fairly common migrant. Earliest spring arrival March 17, 1930, average March 26; latest spring departure May 12, 1925, average April 30. Earliest fall arrival September 26, 1925, average October 10; latest fall departure November 14, 1931, average November 6.

Lesser Snow Goose. *Chen hyperborea hyperborea.* Occasional spring migrant, usually seen in company with Canada Geese. I have the following dates: May 5, 1926; April 2 and May 11, 1927; April 1, 1928; April 4, 5, and 18, 1929.

Blue Goose. *Chen caerulescens.* Rare, a small flock on April 16, 1929, being the only ones seen.

Common Mallard. *Anas platyrhynchos platyrhynchos.* The most common wild duck, breeding in small numbers every year. Earliest arrival March 15, 1930, average March 19. Most birds leave by July 15, thereafter are seen only in migration. Latest fall date November 1, 1929.

Baldpate. *Mareca americana.* Rare; one date only, September 15, 1928.

American Pintail. *Dafila acuta tzitzihoa.* Very common spring migrant, occasional summer resident, rare in fall. Earliest arrival March 15, 1927 and 1930, average March 18. Latest fall departure October 22, 1928.

Green-winged Teal. *Nettion carolinense.* Occasional migrant. I have the following dates: May 4, 1926; May 20 and 30, 1927; April 20 and May 12, 1929; September 3 and 7, October 2, 1928.

Blue-winged Teal. *Querquedula discors.* Fairly common spring migrant, occasional summer resident, rare in fall. Earliest arrival April 20, 1926, 1927, and 1930; average April 23. Latest departure September 30, 1928.

Shoveller. *Spatula clypeata.* Uncommon migrant, rare summer resident. Spring arrival dates, April 14, 1929, and May 1, 1932 (present only two years). A common bird in the wet fall of 1928.

Wood Duck. *Aix sponsa.* Rare; only two records, April 20 and May 1, 1926.

Ring-necked Duck. *Nyroca collaris.* Rare, only two records, April 14 and 21, 1929.

EASTERN GOSHAWK. *Astur atricapillus atricapillus.* Uncommon winter visitant, seen on December 3 and 22, 1925; November 15 and 27, December 21, 1926.

SHARP-SHINNED HAWK. *Accipiter velox velox.* Perhaps breeds along the Red and Sheyenne Rivers. I have seen it only in the latter part of summer and in early fall. Earliest fall date July 30, 1929, latest September 20, 1930.

COOPER'S HAWK. *Accipiter cooperi.* This *Accipiter* also very likely breeds along the Red and Sheyenne Rivers, although none have been seen there in early summer as yet. Only three spring dates: April 7, 1929; May 15, 1930; and April 23, 1932. A fairly common late summer and fall bird. I have three July records: July 12, 1928, and July 16 and 21, 1929. All other records are for August and September; earliest August 26, 1927, and latest September 30, 1929.

EASTERN RED-TAILED HAWK. *Buteo borealis borealis.* A common migrant and an occasional nesting species along the Red and Sheyenne Rivers. Earliest arrival March 25, 1925, average April 1. Latest departure October 28, 1925, average October 18.

SWAINSON'S HAWK. *Buteo swainsoni.* Rare; one record for September 14, 1930.

AMERICAN ROUGH-LEGGED HAWK. *Buteo lagopus s. johannis.* A common late fall and late winter migrant, occasional winter resident. Earliest fall arrival September 26, 1930, average October 5. Latest spring departure April 14, 1928, average March 25.

GOLDEN EAGLE. *Aquila chrysaëtos canadensis.* Rare; only two dates, September 12 and October 18, 1931.

MARSH HAWK. *Circus hudsonius.* Common summer resident, nesting two to four pairs to a section of meadowland. Arrives early in spring; date of departure in fall depends on weather conditions. Earliest arrival February 21, 1930, average February 27. Latest departure November 24, 1925, average November 15. Have records for December 23, 1928, and January 5, 1929.

PRAIRIE FALCON. *Falco mexicanus.* Rare; one record for September 18, 1932.

DUCK HAWK. *Falco peregrinus anatum.* Rare transient, seen on May 19, 1929; October 20, 1929; September 19, 1931; and September 14, 1932.

EASTERN PIGEON HAWK. *Falco columbarius columbarius.* Erratic migrant. Earliest spring arrival March 13, 1926, average April 10; latest spring departure May 3, 1929, average April 30. Earliest fall arrival September 12, 1929, average September 16; latest fall departure October 21, 1926, average October 14.

EASTERN SPARROW HAWK. *Falco sparverius sparverius.* Common migrant but rare breeding species. Earliest arrival April 2, 1928, average April 14. Latest departure October 12, 1930, average October 5.

GREATER PRAIRIE HEN. *Tympanuchus cupido americanus.* A common permanent resident and the finest of our game birds. The farmers' cornfields are favorite winter feeding places, with the deep snow in the meadowlands providing excellent sleeping quarters. I do not believe that their numbers are decreasing.

RING-NECKED PHEASANT. *Phasianus colchicus torquatus.* A foreign game bird recently introduced here. They first appeared in 1928 and are now almost as common as the prairie hen. They do not seem to survive the severe winters as well as the latter bird, however.

SANDHILL CRANE. *Grus canadensis tabida.* Rare, a small flock being seen on April 10, 1925, and one bird April 15, 1926.

VIRGINIA RAIL. *Rallus limicola limicola.* Occasional spring migrant and a rare summer resident, with a nesting record for June, 1925. Earliest spring arrival May 18, 1929. Latest date seen July 7, 1925.

SORA. *Porzana carolina.* A common summer resident at the Slough. Earliest arrival May 7, 1926, average May 13. Latest departure September 25, 1927, average September 16.

AMERICAN COOT. *Fulica americana americana.* Occasional migrant, nesting once (1929) at the Slough. Earliest spring arrival April 21, 1929, average April 28; latest spring departure May 18, 1930, average May 15. Rare in fall, latest departure October 20, 1928.

SEMIPALMATED PLOVER. *Charadrius semipalmatus.* Rare. Small flocks seen on May 11, 1930, and May 18, 1930.

KILLDEER. *Oxyechus vociferus vociferus.* Common summer resident, usually a pair to every barnyard. Earliest arrival March 15, 1927, average March 28. Latest departure October 16, 1928, average October 12.

AMERICAN GOLDEN PLOVER. *Pluvialis dominica dominica.* A not uncommon migrant, apparently increasing in numbers. Earliest spring arrival April 29, 1929, average May 1; latest spring departure May 18, 1932. Earliest fall arrival September 3, 1928, average September 18; latest fall departure November 2, 1928, average October 20.

BLACK-BELLIED PLOVER. *Squatarola squatarola.* Rare spring migrant, seen three times: May 24, 1925; May 31, 1926; and May 24, 1931.

WILSON'S SNIPE. *Capella delicata.* Common spring migrant, rare in fall except in 1928, when it was a common bird from September 3

to October 28. Other autumn records are September 22, 1926 and October 11, 1931. Earliest spring arrival April 13, 1930, average April 22; latest spring departure May 11, 1930, average May 5.

Upland Plover. *Bartramia longicauda.* A summer resident, one or two pairs present every year. Earliest arrival May 3, 1927, average May 9. Latest departure August 28, 1927, average August 22.

Spotted Sandpiper. *Actitis macularia.* Occasional summer resident along the Red and Sheyenne Rivers, never seen elsewhere. Earliest arrival May 10, 1928, latest departure August 21, 1927.

Eastern Solitary Sandpiper. *Tringa solitaria solitaria.* Fairly common migrant. Earliest spring arrival May 1, 1930, average May 6; latest spring departure May 17, 1929, average May 15. Earliest fall arrival July 2, 1929, average July 10; latest fall departure September 25, 1928, average August 20.

Greater Yellow-legs. *Totanus melanoleucus.* Rare. I have the following dates: May 24, 1925; May 29, 1926; September 9 and 10, 1927; September 7, 1928.

Lesser Yellow-legs. *Totanus flavipes.* A fairly common migrant. Earliest spring arrival April 20, 1927 and 1930, average April 23; latest spring departure June 3, 1925, average May 17. Earliest fall arrival July 5, 1928, average July 12; latest fall departure September 29, 1928, average August 20.

Pectoral Sandpiper. *Pisobia melanotos.* The most common sandpiper migrant. Earliest spring arrival April 26, 1930, average May 1; latest spring departure May 19, 1929, average May 18. Earliest fall arrival July 14, 1931, average July 21; latest fall departure September 15, 1928, average August 23.

Least Sandpiper. *Pisobia minutilla.* Uncommon, seen only on May 5, 1926 and August 16, 1931.

Marbled Godwit. *Limosa fedoa.* A large wading bird that is still holding its own in the vicinity. One or two pairs breed every summer, and as many as a dozen are often present in the spring. I have seen these birds only once after June 30, so it is evident that they leave with their young as soon as the latter can fly. They will often breed on the open meadowland where there is no water about for several miles. Earliest arrival April 19, 1926, average April 24. Latest departure July 15, 1932, average June 26. No fall records.

Wilson's Phalarope. *Steganopus tricolor.* Occasional spring migrant, often staying well into June. Earliest spring arrival May 7, 1926, average May 20. Latest spring departure June 17, 1930, average June 5. One record for June 22, 1926, but no fall records.

Herring Gull. *Larus argentatus smithsonianus.* An occasional

spring migrant, seen in five years out of eight. Earliest arrival March 27, 1932, average April 9; latest departure April 28, 1928, average April 16.

RING-BILLED GULL. *Larus delawarensis.* Rare; one record for April 14, 1929.

FRANKLIN'S GULL. *Larus pipixcan.* Common transient. Earliest spring arrival April 26, 1927, average May 3; latest spring departure June 13, 1927. Earliest fall arrival July 1, 1927, average July 20; latest fall departure September 26, 1925, average September 14.

FORSTER'S TERN. *Sterna forsteri.* Rare, one record for June 19, 1932.

BLACK TERN. *Chlidonias nigra surinamensis.* A common transient, occasional individuals appearing during the breeding season. Earliest spring arrival May 11, 1930, average May 18; latest spring departure May 29, 1926, average May 28. Earliest fall arrival July 9, 1930, average July 20; latest fall departure August 31, 1928, average August 21.

WESTERN MOURNING DOVE. *Zenaidura macroura marginella.* A very common summer resident. Earliest arrival April 3, 1925, average April 9. Latest departure October 21, 1928, average October 13. One was seen December 22 to 26, 1928.

BLACK-BILLED CUCKOO. *Coccyzus erythrophthalmus.* Common summer resident. Earliest arrival May 27, 1927, average May 30. Latest departure September 22, 1929, average September 12.

EASTERN SCREECH OWL. *Otus asio naevius.* Fairly common permanent resident, seen most commonly in August, September, October, February, and March. Nests infrequently.

GREAT HORNED OWL. *Bubo virginianus virginianus.* One seen November 10, 1925; a pair was seen occasionally along the Sheyenne River between May 25 and August 21, 1930, perhaps nesting.

SNOWY OWL. *Nyctea nyctea.* A not uncommon winter visitant, quite common some years. Earliest fall arrival November 28, 1929 and 1931, average December 7. Latest spring departure April 4, 1930, average March 15.

AMERICAN HAWK OWL. *Surnia ulula caparoch.* Rare, one record for November 16, 1927.

WESTERN BURROWING OWL. *Speotyto cunicularia hypugaea.* A pair nested in the southern part of Berlin Township for several years, but have not been seen since 1929. Earliest arrival May 1, 1926, average May 3. Latest departure September 25, 1927, average September 24.

Northern Barred Owl. *Strix varia varia.* One record for March 8, 1930.

Great Gray Owl. *Scotiaptex nebulosa nebulosa.* One record for December 26, 1926. This is not a positive record, as later observation indicates that the bird may have been an immature or female Snowy Owl.

Long-eared Owl. *Asio wilsonianus.* Transient. Uncommon in spring, common in fall, loving the growth of willow on the meadowlands. Spring records: May 5, 12, and 17, 1927; April 14, 1928; April 20, 1929. Earliest fall arrival July 10, 1926, average August 15; latest fall departure November 18, 1928, average November 1. One record for January 20, 1929.

Short-eared Owl. *Asio flammeus flammeus.* A permanent resident, varying considerably in numbers from year to year and from season to season. It is a lover of low sedge patches in the meadowlands.

Eastern Nighthawk. *Chordeiles minor minor.* Fairly common migrant. Earliest spring arrival May 11, 1930, average May 24; latest spring departure June 15, 1929, average June 10. Earliest fall arrival August 15, 1925 and 1928, average August 22; latest fall departure September 21, 1927, average September 12.

Chimney Swift. *Chaetura pelagica.* Occasional summer resident, nesting in the chimneys of country churches and of the larger buildings in the villages of Argusville and Harwood. Earliest arrival May 3, 1930, average May 15. Latest departure September 4, 1930, average August 25.

Ruby-throated Hummingbird. *Archilochus colubris.* Common migrant and a rare summer resident along the Red and Sheyenne Rivers. Earliest arrival May 15, 1929, average May 24. Latest departure September 18, 1927, average September 6.

Eastern Belted Kingfisher. *Megaceryle alcyon alcyon.* An occasional pair nests along the Red and Sheyenne Rivers where the water has cut into the banks. Earliest arrival April 29, 1929, average April 30. Latest departure September 18, 1927, average September 8.

Northern Flicker. *Colaptes auratus luteus.* Easily the most common woodpecker, a pair to every grove. Earliest arrival March 29, 1925, average April 6. Latest departure November 1, 1927, average October 16.

Red-headed Woodpecker. *Melanerpes erythrocephalus.* A species not yet common but increasing decidedly in numbers. Earliest arrival May 7, 1926, average May 12. Latest departure September 7, 1927, average August 30.

YELLOW-BELLIED SAPSUCKER. *Sphyrapicus varius varius.* Fairly common migrant, breeding rarely along the Red and Sheyenne Rivers. Earliest arrival April 21, 1929, average April 24. Latest departure October 1, 1926, average September 27.

EASTERN HAIRY WOODPECKER. *Dryobates villosus villosus.* A common permanent resident of the woods along the Red and Sheyenne Rivers, often coming to outlying farm groves in the fall.

NORTHERN DOWNY WOODPECKER. *Dryobates pubescens medianus.* A common permanent resident along the Red and Sheyenne Rivers, more so than the hairy. It is seen in outlying farm groves in late summer, fall, and winter.

EASTERN KINGBIRD. *Tyrannus tyrannus.* A very common summer resident, more so than the following species. Earliest arrival May 11, 1930, average May 16. Latest departure September 16, 1931 and 1932, average September 8. Most birds leave before August 31.

ARKANSAS KINGBIRD. *Tyrannus verticalis.* A very common summer resident. Earliest arrival May 3, 1930, average May 9. Latest departure September 19, 1931, average September 11. Most birds leave before August 31.

NORTHERN CRESTED FLYCATCHER. *Myiarchus crinitus boreus.* Occasionally nests along the Red and Sheyenne Rivers. Earliest arrival May 22, 1927, average May 23. Latest departure August 25, 1926, average August 17.

EASTERN PHOEBE. *Sayornis phoebe.* My belief that this species nests along the Red and Sheyenne Rivers is based on the presence of a pair about a bridge over the Sheyenne in the summer of 1929, although no nest could be found. Earliest arrival April 4, 1925, average April 17. Latest departure October 18, 1925, average September 28.

YELLOW-BELLIED FLYCATCHER. *Empidonax flaviventris.* Occasional transient, seen in May (four years out of eight) and in August (seven years out of eight). Earliest spring arrival May 11, 1925, average May 20; latest departure May 29, 1925, average May 25. Earliest fall arrival August 1, 1926, average August 14; latest fall departure August 27, 1932, average August 23.

ALDER FLYCATCHER. *Empidonax trailli trailli.* A rather uncommon nesting species in tree claims and along the Red and Sheyenne Rivers. Earliest arrival June 4, 1930, average June 5. Latest departure August 22, 1928, average August 15.

LEAST FLYCATCHER. *Empidonax minimus.* A common summer resident. Earliest arrival May 3, 1930, average May 11. Latest departure September 26, 1927, average September 17.

Eastern Wood Pewee. *Myiochanes virens.* Common summer resident in tree claims and along the Red and Sheyenne Rivers. Earliest arrival May 11, 1930, average May 26. Latest departure September 24, 1929, average September 12.

Olive-sided Flycatcher. *Nuttallornis mesoleucus.* Has been seen only in August, with dates ranging from August 11, 1932, to August 26, 1932. Seven were present in one small tree claim on August 23, 1931.

Prairie Horned Lark. *Otocoris alpestris praticola.* This is evidently the nesting subspecies, but I have not been able to satisfy myself yet as to other subspecies. The birds are present at times throughout the winter, but usually are gone by the middle of November, not to return again until February. Frequently migrate in large numbers. Those that stay to breed usually raise two broods, a corn field forming a favorite place for the second nest.

Tree Swallow. *Iridoprocne bicolor.* Very common spring migrant, returning again early in the fall in much smaller numbers. Earliest spring arrival April 24, 1927, average April 28; latest spring departure May 29, 1925, average May 24. Earliest fall arrival July 28, 1932, average August 8; latest fall departure August 30, 1928, average August 20.

Bank Swallow. *Riparia riparia riparia.* A common nesting species in vertical banks of the Red and Sheyenne Rivers. Earliest arrival May 3, 1925, average May 11. Latest departure September 12, 1927, average August 31.

Barn Swallow. *Hirundo erythrogaster.* Our most common and best known swallow. Earliest arrival April 23, 1926, average May 2. Latest departure October 4, 1930, average October 1.

Northern Cliff Swallow. *Petrochelidon albifrons albifrons.* An erratic visitor, regular but uncommon in spring migrations. Dates range from May 11, 1930, to June 16, 1929; and in late summer, from July 7, 1931, to August 23, 1932.

Purple Martin. *Progne subis subis.* Not uncommon migrant. The only nesting pairs in the area are two or three that return to Argusville village every year. Earliest arrival April 20, 1932, average April 30. Latest departure September 20, 1929, average August 30.

Northern Blue Jay. *Cyanocitta cristata cristata.* Occasionally nests along the Red and Sheyenne Rivers, now and then seen in outlying farmyards. Rarely winters.

Eastern Crow. *Corvus brachyrhynchos brachyrhynchos.* A common summer resident and occasional permanent resident. One or two are usually about in the winter unless the weather is very severe. Mi-

gration dates for years when none were present in the winter: earliest arrival February 18, 1930, average February 22. Latest departure December 7, 1930, average November 23. The bulk of the birds migrate in March and October.

BLACK-CAPPED CHICKADEE. *Penthestes atricapillus atricapillus.* A common winter visitant, breeds rarely along the Red and Sheyenne Rivers. The winter influx takes place in the latter part of August and in September; the birds leave again in March and in early April.

WHITE-BREASTED NUTHATCH. *Sitta carolinensis carolinensis.* A common permanent resident along the Red and Sheyenne Rivers, occasionally visiting outlying farm groves.

RED-BREASTED NUTHATCH. *Sitta canadensis.* An erratic fall transient, absent in 1926, 1927, 1928, and 1932. Earliest fall arrival September 23, 1929, average October 3. Latest fall departure October 24, 1925, average October 18.

BROWN CREEPER. *Certhia familiaris americana.* A common transient. Earliest spring arrival March 23, 1928, average April 3; latest spring departure May 6, 1928, average April 26. Earliest fall arrival September 18, 1925, average September 30; latest fall departure November 4, 1928, average October 23.

WESTERN HOUSE WREN. *Troglodytes aedon parkmani.* Common summer resident. Earliest arrival April 30, 1929, average May 8. Latest departure October 12, 1925, average September 30.

EASTERN WINTER WREN. *Nannus hiemalis hiemalis.* Rare migrant, seen only on April 9, 1930, September 15, 1928, and November 5, 1925.

SHORT-BILLED MARSH WREN. *Cistothorus stellaris.* Fairly common summer resident of low spots in the meadowlands, and the Slough. Earliest arrival April 27, 1929, average May 14. Latest departure October 21, 1928, average September 20.

CATBIRD. *Dumatella carolinense.* Fairly common summer resident. Earliest arrival May 11, 1930, average May 18. Latest departure September 30, 1925, average September 20.

BROWN THRASHER. *Toxostoma rufum.* Common summer resident. Earliest arrival May 2, 1928, average May 6. Latest departure September 23, 1927, average September 19.

EASTERN ROBIN. *Turdus migratorius migratorius.* Very common migrant and summer resident. Earliest arrival March 16, 1927, average March 27. Latest departure November 7, 1925, average October 23.

EASTERN HERMIT THRUSH. *Hylocichla guttata faxoni.* Fairly common transient. Earliest spring arrival April 10, 1929 and 1930, average April 16; latest spring departure May 18, 1929, average May

1. Earliest fall arrival September 17, 1932, average September 26; latest fall departure October 21, 1928, average October 12.

Olive-backed Thrush. *Hylocichla ustulata swainsoni.* The most common thrush migrant, occurring in large numbers at times in the spring and fall of each year. Earliest spring arrival May 5, 1931 and 1932, average May 7; latest spring departure May 30, 1929 and 1930, average May 29. Earliest fall arrival August 25, 1928, average August 28; latest fall departure October 5, 1930, average September 27.

Gray-cheeked Thrush. *Hylocichla minima aliciae.* Much less common than the preceding species, only a few individuals being seen each year. Earliest spring arrival May 9, 1930, average May 14; latest spring departure June 10, 1928, average May 28. Earliest fall arrival August 22, 1928, average September 10; latest fall departure September 19, 1931, average September 17.

Willow Thrush. *Hylocichla fuscescens salicicola.* The least common of the thrushes. Does not nest. I have the following dates: May 20 to June 3, 1928; May 19 to May 28, 1929; May 16 to May 18, 1930; May 24 to June 2, 1931; and September 9, 1928.

Eastern Bluebird. *Sialia sialis sialis.* Uncommon migrant and rare summer resident. Earliest arrival March 27, 1925, average March 28. Latest departure October 18, 1930, average October 8.

Eastern Golden-crowned Kinglet. *Regulus satrapa satrapa.* An erratic spring migrant, regular and common fall migrant. Earliest spring arrival March 30, 1925, average April 8; latest spring departure April 28, 1927, average April 25. Earliest fall arrival September 26, 1929, average October 4; latest fall departure November 10, 1928, average October 28.

Eastern Ruby-crowned Kinglet. *Corthylio calendula calendula.* Common transient. Earliest spring arrival April 14, 1931, average April 20; latest spring departure May 24, 1927, average May 18. Earliest fall arrival August 31, 1925, average September 9; latest fall departure October 18, 1925 and 1931, average October 13.

American Pipit. *Anthus spinoletta rubescens.* Occasional spring migrant, common fall migrant, with a particular liking for burnt-over fields. Earliest spring arrival April 28, 1928, average May 6; latest spring departure May 19, 1929, average May 18. Earliest fall arrival September 13, 1930, average September 25; latest fall departure November 1, 1931, average October 24.

Sprague's Pipit. *Anthus spraguei.* This bird has a rather peculiar local history. It was first seen July 24, 1927, and did not appear again until July 17, 1929, when several birds appeared and haunted

the meadowlands as late as September 14. None appeared again next year (1930) until July 14; again the species was here until September 14. The next year, arriving on May 2, two pairs stayed the summer through until September 13, evidently nesting. In the spring of 1932 they arrived May 1 but had left again by May 18. Reappearing July 22, they stayed until September 18. When present there are usually from four to ten about. The males are constant singers from their arrival in May until one or two weeks into August.

Bohemian Waxwing. *Bombycilla garrula pallidiceps.* Rare, seen only on December 1, 1928.

Cedar Waxwing. *Bombycilla cedrorum.* An infrequent visitor. I have the following records: June 4 and 9, 1927; June 6, 7, and 8, 1929; June 1, 18, and 19, 1930; August 25 and September 28, 1929; August 23, September 16 and 22, 1930; August 28 and September 5, 1931; and August 23, 1932.

Northern Shrike. *Lanius borealis borealis.* An uncommon winter visitant. I have the following dates: January 3 and 17, February 11, 1925; February 1, October 16, 25, 26, and 30, November 3, 8, and 17, and December 5, 1927; and October 21 and 29, 1928.

Migrant Shrike. *Lanius ludovicianus migrans.* Common summer resident. Earliest arrival March 31, 1928, average April 10. Latest departure October 5, 1930, average September 20.

Yellow-throated Vireo. *Vireo flavifrons.* Frequent summer resident in the trees along the Red and Sheyenne Rivers and in "tree claims". Earliest arrival May 15, 1928, average May 23. Latest departure August 23, 1932, average August 22.

Blue-headed Vireo. *Vireo solitarius solitarius.* Occasional migrant. Earliest spring arrival May 10, 1929, average May 21; latest spring departure June 13, 1927, average June 1. Earliest fall arrival August 29, 1929, average September 8; latest fall departure September 19, 1932, average September 17.

Red-eyed Vireo. *Vireo olivaceus.* Frequent migrant and an occasional nesting species in the woods along the Red and Sheyenne Rivers. Earliest arrival May 28, 1932, average May 30. Latest departure September 22, 1929, average September 16.

Eastern Warbling Vireo. *Vireo gilvus gilvus.* The most common summer resident vireo. Earliest arrival May 15, 1928, average May 20. Latest departure September 21, 1925, average September 12.

Black and White Warbler. *Mniotilta varia.* Frequent transient. Earliest spring arrival May 5, 1926, average May 10; latest spring departure May 29, 1926, average May 19. Earliest fall arrival August

10, 1932, average August 22; latest fall departure October 2, 1929, average September 17.

TENNESSEE WARBLER. *Vermivora peregrina.* Common transient. Earliest spring arrival May 10, 1926, average May 13; latest spring departure June 6, 1928, average May 30. Earliest fall arrival September 3, 1930, average September 11; latest fall departure September 28, 1926, average September 22.

ORANGE-CROWNED WARBLER. *Vermivora celata celata.* Common transient. Earliest spring arrival April 23, 1932, average May 4; latest spring departure May 29, 1926, average May 22. Earliest fall arrival August 23, 1931, average September 3; latest fall departure October 11, 1931, average September 27.

NASHVILLE WARBLER. *Vermivora ruficapilla ruficapilla.* Occasional transient. Earliest spring arrival May 10, 1929, average May 14; latest spring departure May 28, 1925, average May 23. Earliest fall arrival August 29, 1929, average September 13; latest fall departure September 28, 1929, average September 25.

This and the two preceding species are very hard to distinguish in the fall, and some of the above fall records may be questionable.

EASTERN YELLOW WARBLER. *Dendroica aestiva aestiva.* Common summer resident, liking especially the willow patches on the meadowlands. Earliest arrival May 5, 1926, average May 11. Latest departure September 19, 1927, average September 12.

MAGNOLIA WARBLER. *Dendroica magnolia.* Transient, occurring most commonly in the spring. Earliest spring arrival May 11, 1931, average May 17; latest spring departure June 12, 1927, average May 28. Only two fall records: September 18 and 19, 1926.

CAPE MAY WARBLER. *Dendroica tigrina.* Rare, seen only in 1930, May 11-15, 18.

BLACK-THROATED BLUE WARBLER. *Dendroica caerulescens caerulescens.* Rare, only two records, August 29 and September 12, 1932.

MYRTLE WARBLER. *Dendroica coronata.* The most common transient warbler. Earliest spring arrival April 18, 1929, average April 25; latest spring departure May 30, 1928, average May 23. Earliest fall arrival September 5, 1927, average September 13; latest fall departure November 5, 1927, average October 15.

BLACK-THROATED GREEN WARBLER. *Dendroica virens virens.* Rare. Five records: May 7-8, 1928; May 19 and September 13, 1929; May 11-12, 1930; and September 19, 1931.

BLACKBURNIAN WARBLER. *Dendroica fusca.* Rare; one record for August 23, 1932.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica.* Uncommon; seen on May 25 and August 27, 1925; May 23 and June 3, 1928; May 28 and August 25, 1929; and May 24, 1931.

BAY-BREASTED WARBLER. *Dendroica castanea.* Uncommon; records for May 18-21, June 3, 1928; May 23, 28, 1929; May 13, 1930; and August 16, 1932.

BLACK-POLL WARBLER. *Dendroica striata.* Common spring migrant, but thus far I have been unable to satisfactorily identify any autumn birds. Earliest spring arrival May 8, 1930, average May 12; latest spring departure June 10, 1928, average June 1.

WESTERN PALM WARBLER. *Dendroica palmarum palmarum.* Common transient. Earliest spring arrival April 30, 1931, average May 7; latest spring departure May 24, 1931, average May 19. Earliest fall arrival September 8, 1928, average September 13; latest fall departure October 16, 1927, average September 30.

OVEN-BIRD. *Seiurus aurocapillus.* Common transient. Earliest spring arrival May 10, 1929, average May 16; latest spring departure June 3, 1925 and 1928, average May 26. Earliest fall arrival August 23, 1931, average September 3; latest fall departure September 26, 1927, average September 20.

GRINNELL'S WATER-THRUSH. *Seiurus noveboracensis notabilis.* Very common transient, especially in the fall. Earliest spring arrival April 30, 1929; average May 16; latest spring departure June 3, 1927, average May 25. Earliest fall arrival August 13, 1925, average August 16; latest fall departure September 23, 1929, average September 18.

CONNECTICUT WARBLER. *Oporornis agilis.* Infrequent transient. Records for June 10 and 14, 1928; May 25, 1930; August 22, 1927; and August 16, 1932.

MOURNING WARBLER. *Oporornis philadelphia.* Occasional migrant. Earliest spring arrival May 22, 1927, average May 25; latest spring departure June 12, 1927, average May 29. Earliest fall arrival August 22, 1927 and 1931, average August 30; latest fall departure September 18, 1926, average September 13.

NORTHERN YELLOW-THROAT. *Geothlypis trichas brachidactyla.* Common summer resident. Earliest arrival May 11, 1930, average May 14. Latest departure October 10, 1927, average October 1.

YELLOW-BREASTED CHAT. *Icteria virens virens.* Only one record, May 17, 1927.

WILSON'S WARBLER. *Wilsonia pusilla pusilla.* Common migrant, especially in the fall. Earliest spring arrival May 11, 1930, average May 17; latest spring departure May 28, 1930, average May

25. Earliest fall arrival August 16, 1928 and 1932, average August 21; latest fall departure September 19, 1931, average September 15.

CANADA WARBLER. *Wilsonia canadensis.* Uncommon spring migrant, common fall migrant. Spring records are May 24, 1925; May 24-25, 1926; May 31, June 3, 1928; May 24, 1929. Earliest fall arrival August 16, 1932, average August 24; latest fall departure September 6, 1929, average September 1.

AMERICAN REDSTART. *Setophaga ruticilla.* Fairly common migrant. Earliest spring arrival May 7, 1926, average May 14; latest spring departure June 14, 1927, average June 1. Earliest fall arrival August 20, 1928, average August 27; latest fall departure September 23, 1929, average September 17.

ENGLISH SPARROW. *Passer domesticus domesticus.* A very common bird and a great nuisance about all farmyards.

BOBOLINK. *Dolichonyx oryzivorus.* Abundant summer resident of the meadowlands. Earliest arrival May 4, 1928, average May 12. Latest departure September 22, 1927, average September 12.

WESTERN MEADOWLARK. *Sturnella neglecta.* Very common summer resident. Earliest arrival March 15, 1927, average March 19. Latest departure November 5, 1932, average October 26. One record for November 24, 1925.

YELLOW-HEADED BLACKBIRD. *Xanthocephalus xanthocephalus.* Nests at the Slough in the wetter summers, a fairly common bird. Earliest arrival April 21, 1926, average May 4. Latest departure September 16, 1927, average August 20. Uncommon after July 15.

GIANT REDWING. *Agelaius phoeniceus arctolegus.* The most abundant breeding bird in the vicinity. Earliest arrival March 6, 1925, average March 19. Latest departure November 25, 1927, average November 15. Individual birds frequently feed in our barnyard during the winter.

ORCHARD ORIOLE. *Icterus spurius.* A pair of these birds nests at our grove every summer. Have not found them elsewhere. Earliest arrival May 25, 1929, average May 27. Latest departure August 23, 1932, average August 15.

BALTIMORE ORIOLE. *Icterus galbula.* Common summer resident. Earliest arrival May 11, 1930, average May 16. Latest departure September 14, 1930, average September 3.

RUSTY BLACKBIRD. *Euphagus carolinus.* Common transient. Earliest spring arrival March 24, 1927 and 1928, average March 29; average spring departure about May 15. Earliest fall arrival September 16, 1925 and 1928, average September 21; latest fall departure

November 18, 1928, average November 14. Also have records for November 25, 1925, and December 28, 1929.

Brewer's Blackbird. *Euphagus cyanocephalus.* Occasional summer resident. Earliest arrival March 27, 1925, average March 29. Latest departure November 3, 1929, average November 1. An individual seen November 26, 27, and 28, 1931. For some reason they seem to be less common here than in the general region.

Bronzed Grackle. *Quiscalus quiscula aeneus.* Common summer resident. Earliest arrival March 27, 1925, average April 1. Latest departure November 3, 1927, average October 20.

Nevada Cowbird. *Molothrus ater artemisiae.* Common summer resident. The bulk of the birds leave in August. Earliest arrival April 26, 1925, average April 29 (record for April 8, 1930). Latest departure September 9, 1925, average August 26 (records for September 23, 1926, and October 4, 1931).

Scarlet Tanager. *Piranga erythromelas.* Rare, seen only on May 26 and 29, 1926.

Rose-breasted Grosbeak. *Hedymeles ludovicianus.* An occasional nesting pair along the Red and Sheyenne Rivers. Earliest arrival May 8, 1926, average May 14. Latest fall departure September 16, 1932, average August 31.

Indigo Bunting. *Passerina cyanea.* Nests occasionally along the Red and Sheyenne Rivers. Earliest arrival May 24, 1928, average May 28. Latest departure September 14, 1930, average September 11.

Dickcissel. *Spiza americana.* A species that varies greatly in abundance from year to year. They were numerous in 1925, 1927, and 1928. In 1926 and the years following 1928 only a few individuals appeared. Earliest arrival May 17, 1928, average May 29. Latest departure September 19, 1931, average August 25. Also have records for May 8 and 9, 1928.

Eastern Purple Finch. *Carpodacus purpureus purpureus.* An erratic bird, seen only occasionally, except in the fall of 1927 when it was present in numbers from October 3 to November 9. Records exclusive of the fall of 1927 are: October 3, 1925; May 12, 1926; May 12, 1928; May 10, 1929; April 26-27, 1930; May 12, 1931; May 11 and October 16, 1932.

Common Redpoll. *Acanthis linaria linaria.* Winter visitant, common some years and in others comparatively rare. 1925-26 and 1927-28 were good redpoll winters. Earliest fall arrival October 16, 1932, average October 21. Latest spring departure April 10, 1930, average April 1.

Northern Pine Siskin. *Spinus pinus pinus.* Another erratic finch, apt to appear at any time. Records for May 12, 1928; September 3-October 23, 1928; May 27-June 6, 1929; October 14-27, 1929; June 25, 1930; September 27, 1930; May 16, 1931; and September 2-October 9, 1932.

Eastern Goldfinch. *Spinus tristis tristis.* Common summer resident. Earliest arrival May 10, 1930, average May 17. Latest departure October 20, 1927, average October 17. Records for November 9 and 15, 1930.

Red Crossbill. *Loxia curvirostra pusilla.* Rare. Records for October 9 and 10, 1931, are the only ones I have.

Red-eyed Towhee. *Pipilio erythrophthalmus erythrophthalmus.* Uncommon; have records for May 23, 1926; September 23, 1927; May 11, 1929; September 14, 1929; and May 4, 1929.

Lark Bunting. *Calamospiza melanocorys.* Uncommon; records for May 19 and 27, 1925; June 2, 1930; May 24, July 1 and August 3, 1931.

Eastern Savannah Sparrow. *Passerculus sandwichensis savanna.* Abundant summer resident of the meadowlands. Earliest arrival April 13, 1925, average April 17. Latest departure October 27, 1926, average October 20.

Western Grasshopper Sparrow. *Ammodramus savannarum maculatus.* Common summer resident of the meadowlands. Earliest arrival April 26, 1927, average May 12. Latest departure September 14, 1929, average September 10.

Baird's Sparrow. *Ammodramus bairdi.* Fairly common summer resident of the meadowlands. No records after the end of the singing season in late July and early August, the latest date being August 5, 1928. Earliest arrival May 6, 1930, average May 17.

Leconte's Sparrow. *Passerherbulus caudacutus.* A frequent migrant and rare summer resident, at least one pair having nested in the meadowlands in 1930. Earliest arrival April 27, 1929, average May 8. Latest departure October 18, 1931, average September 26.

Eastern Vesper Sparrow. *Pooecetes gramineus gramineus.* Common summer resident of roadsides and pastures. Earliest arrival April 9, 1930, average April 17. Latest departure October 18, 1930, average October 14.

Eastern Lark Sparrow. *Chondestes grammacus grammacus.* Rare; a pair bred near a certain "tree claim" in the summers of 1927 and 1929. Earliest arrival May 4, 1929, latest departure July 30, 1929.

SLATE-COLORED JUNCO. *Junco hyemalis hyemalis.* Common transient. Earliest spring arrival March 15, 1927, average March 21; latest spring departure May 27, 1927, average May 16. Earliest fall arrival September 5, 1930, average September 13; latest fall departure November 15, 1926, average November 11.

EASTERN TREE SPARROW. *Spizella arborea arborea.* Common transient, seen rarely during winter. Earliest spring arrival February 23, 1930, average March 10; latest spring departure May 5, 1927, average April 29. Earliest fall arrival October 1, 1932, average October 6; latest fall departure November 24, 1925, average November 12. Winter records are January 3, 1925, and January 9, 1928.

EASTERN CHIPPING SPARROW. *Spizella passerina passerina.* Nests commonly along Red and Sheyenne Rivers. Earliest arrival April 28, 1927, average April 30. Latest departure October 1, 1928, average September 20.

CLAY-COLORED SPARROW. *Spizella pallida.* Common summer resident of "tree claims" and scrub willow growths. Earliest arrival April 28, 1927, average May 2. Latest departure October 6, 1930, average September 26.

HARRIS'S SPARROW. *Zonotrichia querula.* Common transient. Earliest spring arrival April 27, 1925, average May 6; latest spring departure May 29, 1926, average May 27. Earliest fall arrival September 12, 1926, average September 16; latest fall departure October 24, 1925, 1927, and 1930, average October 21. Also have records for June 24, 1925; June 7, 1927; and August 22, 1928.

WHITE-CROWNED SPARROW. *Zonotrichia leucophrys leucophrys.* Occasional transient. Earliest spring arrival April 29, 1928, average May 4; latest spring departure May 25, 1926 and 1930, average May 22. Earliest fall arrival September 18, 1926, average September 22; latest fall departure October 9, 1927, average October 7. Record for June 15, 1932.

GAMBEL'S SPARROW. *Zonotrichia leucophrys gambeli.* Fairly common migrant. Earliest spring arrival May 2, 1930, average May 6; latest spring departure May 22, 1931, average May 21. Earliest fall arrival September 14, 1932, average September 19; latest fall departure October 11, 1931, average October 6.

WHITE-THROATED SPARROW. *Zonotrichia albicollis.* Very common migrant. Earliest spring arrival April 22, 1925 and 1931, average April 26; latest spring departure May 26, 1925, average May 23. Earliest fall arrival September 5, 1930, average September 10; latest

fall departure October 21, 1928, average October 17. Have a record for June 12, 1927.

Eastern Fox Sparrow. *Passerella iliaca iliaca.* Fairly common transient. Earliest arrival March 25, 1928, average April 6; latest spring departure May 2, 1930, average April 27. Earliest fall arrival September 16, 1930, average September 18; latest fall departure October 18, 1931, average October 13.

Lincoln's Sparrow. *Melospiza lincolni lincolni.* Common transient. Earliest spring arrival April 27, 1929, average May 1; latest spring departure May 30, 1928, average May 24. Earliest fall arrival August 22, 1927, average August 26; latest fall departure October 21, 1928, average October 5.

Swamp Sparrow. *Melospiza georgiana.* Common transient. Earliest spring arrival April 13, 1930, average April 19; latest spring departure May 25, 1930, average May 22. Earliest fall arrival September 11, 1929, average September 15; latest fall departure October 28, 1928, average October 18.

Dakota Song Sparrow. *Melospiza melodia juddi.* Very common transient and an occasional summer resident along the Red and Sheyenne Rivers. Earliest arrival March 25, 1928, average April 2. Latest departure November 1, 1925, average October 24.

Lapland Longspur. *Calcarius lapponicus lapponicus.* The most abundant migrant, and frequently the most common winter species. Winters when they were absent are 1926-27, 1929-30, and 1931-32. Earliest fall arrival September 10, 1926, average September 18. Latest spring departure May 21, 1925 and 1926, average May 18.

Smith's Longspur. *Calcarius pictis.* Uncommon; records for April 28, 1928; May 8, 1929; and October 18, 1931.

Chestnut-collared Longspur. *Calcarius ornatus.* Uncommon; records for April 22, 1926; August 4, 1928; and May 24, 1931.

Eastern Snow Bunting. *Plectrophenax nivalis nivalis.* Common winter resident. Earliest fall arrival October 16, 1932, average October 20. Latest spring departure April 3, 1932, average March 18. Have records for April 18, 1925, and April 18 and 26, 1930.

Argusville, North Dakota.

THE WILSON BULLETIN

Published at Sioux City, Iowa, by the Wilson Ornithological Club.

The present editorial organization is as follows: T. C. Stephens, Editor-in-Chief, Sioux City, Iowa; Myron H. Swenk, University of Nebraska, Lincoln, Nebraska; L. W. Wing, Ann Arbor, Michigan.

EDITORIAL

BY RECENT ACTION of the W. O. C. Council the next annual meeting has been set definitely for December 28 and 29 (Friday and Saturday), at Pittsburgh, Pa., in conjunction with the A. A. A. S. meeting. The meeting for 1935 will be held during the Convocation Week, with the A. A. A. S., at St. Louis, Mo. The 1936 meeting has been tentatively set for early fall at Sioux City, Iowa. The 1937 meeting will probably go with the A. A. A. S. to Indianapolis, Ind., though no action has been taken on this date.

WE HAVE BEEN very much impressed by the recent discussion in the *Canadian Field-Naturalist* on the matter of making field identifications of subspecies of birds. The question is of sufficient importance and interest to justify a detailed review in this place. It is a matter of fundamental importance to all who undertake to prepare a list of birds based upon field identification—the so-called "sight records". Is the student justified in listing subspecies on the basis of field identification?

The discussion began as the result of the publication (*Canadian Field-Naturalist*, March, 1933, page 56) of a Christmas Census (referred to in the discussion as the Comox Census) in which subspecies were enumerated. In the same periodical (for September, 1933, page 112) Mr. Hamilton M. Laing offers criticism which brings the question to an issue. Following this Dr. Harrison F. Lewis, as Chairman of the Bird Census Committee, makes a defense for editorial correction of the original manuscript. And on page 116 (*ibidem*) Mr. P. A. Taverner comments as the ornithological editor of the magazine. The discussion is continued in the December number (pp. 176-177) by Mr. W. E. Saunders and by Mr. Theed Pearse, author of the original Comox Census. We may now briefly summarize the contentions of the several authors.

The gist of Mr. Laing's criticism is that it is impossible to make the fine distinctions in the field necessary for identification of subspecies. Dr. Lewis republished the original Comox manuscript *verbatim et literatim*. By comparison of the original manuscript with the published list it is evident that the editor made certain vital changes. For example, "Chickadee" was changed to "Oregon Chickadee"; "Robin" was changed to "Northwestern Robin"; "Golden-crowned Kinglet" was changed to "Western Golden-crowned Kinglet"; "Purple Finch" was changed to "California Purple Finch".

Thus, the author did not attempt to identify subspecies in the field, but was made to appear to do so by editorial prerogative. The reader may decide for himself which subspecies is more likely to be found in the given area, but the author did not make a decision on this point. It is many times a question how far it is proper for an editor to go in changing the author's meaning; but it is probably a safe rule for the editor to change to a weaker, rather than to a

stronger statement. The proper balancing of the rights of the author with editorial rules and style requires some care, possibly some skill. However, this is not the main point at issue. The main point is expressed by Mr. Taverner in the following words:

"The discussion brings prominently into view one of the most serious defects of the Fourth Edition of that Check-List [the A. O. U. Check-List]. It does not provide specific entities for just such uses as this . . . there is no way, without awkward circumlocution, of referring to many groups of subspecies or to designate forms whose subspecific status may be uncertain. . . . In formal use the scientific binomial is always available to the instructed but the general public who have little occasion to familiarize themselves with scientific technicalities are given no vernacular alternative but to make exact subspecific designation whether they are justified in doing so or not."

Continuing the discussion Mr. Saunders asks, "Why, then, should we carry on the farce of naming the sub-species of birds seen in the field? . . . Sub-species are for the closet student, not for the field worker."

Possibly these excerpts will give a sufficient idea of the trend of the discussion. We will not attempt to foretell what our own future editorial policy will be, except that we will try to be more careful. But we are disposed to recommend to prospective authors that faunal lists based upon field work should be reported in binomial terms rather than in trinomials. It is so perfectly evident that subspecific identification made in the field is pure guess work, that it really ought to be abandoned. We believe that writers usually assume that a bird belongs to a certain subspecies because it occurs within the usual range of that subspecies. This assumption is unscientific. As Mr. Taverner has said (Wilson Bulletin, XL, December, 1928, page 263), "It gives a pleasing appearance of scientific acumen and accuracy that is lacking in fact. If we base our distributions on determinations in faunal lists and other records, and then make those determinations from such supposed distributions we work in a vicious circle that gets nowhere and confirms what error there is without a chance of correcting it."

We may say that the Wilson Bulletin, for the present, will not decline to publish such lists in trinomials if the author so prefers; but we strongly recommend and urge that binomials be used. Of course this presents certain difficulties. It will not be difficult, in most cases, to form the technical name of the species by simply dropping the third term in the trinomial name as given in the A. O. U. Check-List. But this Check-List as now written is utterly useless in providing specific vernacular names for our birds. It seems very strange now that the A. O. U. Committee should have been so short-sighted in failing to supply so obvious a need. The situation places upon each writer the responsibility of forming as best he may an appropriate vernacular name for each species.

The following extracts from a letter written to an author within the past year further explain our editorial position on the matter of publication:

"One can easily recognize a Bohemian Waxwing in the field, but one can not possibly say with scientific accuracy that it belongs to the subspecies *pallidiceps*; all that can be said is that there is a strong probability that it belongs to this race. And the reader can make this assumption as well as the author can. Hence, why not let the reader take the responsibility? And in cases where

there are several subspecies on the same continent the uncertainty becomes all the greater.

"However, until our editorial policy is shaped up more definitely, the author will have full sway with trinomials. . . . Please remember, that the proposition is that you can not recognize subspecies in the field in *any* case; that in every case listing subspecies in the field is guess work. This enables one to be consistent. The one difficulty is the lack of an English name for the species, and this is because the last edition of the Check-List pre-empted the old vernacular names and applied them to subspecific units." We hardly see how there can be an argument on this point. Because a given subspecies *ought* to be in the geographical range assigned to it, it is not valid scientific evidence that it is the one actually found there except where the specimen is taken and demonstrated. And the case permits of no generalization in fact beyond the fact that a given area is one where a given subspecies normally occurs. That every individual of the species found within the area belongs to the expected subspecies by virtue of its presence there is an unwarranted conclusion. If birds possessed less efficient locomotor organs the case might not be so clear. But even plants get out of their range by one means or another. How much more likely are animals to do so, and birds above all others! If birds were less motile, and if subspecies were more easily identifiable there would probably be less uncertainty in the assumption of identity on the basis of geographic incidence.

Since the last issue of the BULLETIN was distributed we have received several communications calling attention to the fact that often species can not be identified in the field. Our remarks on page 208 (December, 1933) were unfortunately phrased if they implied that species might always be recognized in the field. At once we grant the point that some species are not readily identifiable in the field, possibly not at all by many observers, and perhaps in some cases not at all by any observers. We were more intent on the proposition that subspecies are not identifiable in the field.

The difficulty has been forced upon us by a sort of orthogenetic bias of the taxonomic specialists who conceive the subspecies unit to be the *summum bonum*, and who, apparently, in their zeal to emphasize subspecies, have carelessly scuttled the species concept. The American Ornithologists' Union could perform a great service, if they would, by preparing a supplement giving vernacular specific names. This would tend to preserve uniformity, which under present conditions is likely to suffer.

THE NORTH DAKOTA list in this issue is published by the aid of a subsidy. This paper received the Sigma Xi certificate of award for undergraduate research, to which a reference is made, without names, in *Science*, February 2, 1934.

READERS of this magazine will be much pleased to know that Mrs. Nice has just published a very extensive paper on the natural history of the Song Sparrows in the *Journal für Ornithologie*. The first instalment appeared in the October number (Vol. LXXXI, No. 4, pp. 552-595); the second instalment has just appeared in the January number (Vol. LXXXII, No. 1, pp. 1-96). This paper presents a full account, in the German language, of Mrs. Nice's work to date on this species.

GENERAL NOTES

Conducted by M. H. Swenk

The Starling in Day County, South Dakota.—I have two records of the Starling (*Sturnus vulgaris*) in this vicinity. On May 14, 1933, I saw one in company with some blackbirds near Lake Minnewashta, Day County, South Dakota. On December 27, 1933, I shot one across the alley from the Hospital here in Webster, also in Day County.—Arthur R. Lundquist, *Webster, S. D.*

The Starling at Sioux City, Iowa.—On October 1, 1933, I saw four Starlings (*Sturnus vulgaris*) in North Morningside, Sioux City. This is the first record that I have of the species in Woodbury County. A pair of the birds was seen on April 22, 1933, near Ida Grove, Iowa, which is about fifty miles southeast of Sioux City.—Wm. Youngworth, *Sioux City, Iowa.*

The American Egret in Martin County, Minnesota.—During August, 1932, the Rev. Harold W. Wager, of Dell Rapids, South Dakota, while visiting at his father's farm, eight and one-half miles southeast of Fairmont, Martin County, Minnesota, saw eight American Egrets (*Herodias alba egretta*) associating with Black-crowned Night Herons (*Nycticorax nycticorax hoactli*) at a small lake on the farm. The night herons were nesting, but there was no evidence that the egrets were. However, he did state that both species were roosting at night in the same trees.—W. H. Over, *Museum of the University of South Dakota, Vermillion. S. D.*

Field Notes from the Sioux City, Iowa, Region.—On July 4, 1933, I found a pair of the Lazuli Bunting (*Passerina amoena*) at Yankton, South Dakota. This town is about fifty air miles from Sioux City. The actions of the birds indicated nesting, and brings the species still closer to the Iowa border, as a summer resident. A male Blue Grosbeak (*Guiraca caerulea*) was noted at Honey Creek, Iowa, on July 24, 1933. This location is a short distance north of Council Bluffs, Iowa. The Song Sparrow (*Melospiza melodia*) has been found at Sioux City again this year, and since young birds have been seen, the writer has put the species down as a regular summer resident, although it is found in but very limited numbers.—Wm. Youngworth, *Sioux City, Iowa.*

Migrant Nelson's Sparrows in Central Iowa.—Six Nelson's Sparrows (*Ammospiza caudacuta nelsoni*) were collected by the writer at Little Wall Lake, Hamilton County, Iowa, September 30, 1933. Of these six, a juvenal and an adult male are now mounted in the Bullock collection, Des Moines, and the other four, an adult female, two juvenal males, and a juvenal female, remain in my collection. Eight others were identified but not collected. These birds were found among the wild rice and cat-tails. When flushed, they usually flew but a short distance, towards deeper cover, alighted in the tops of the vegetation, and almost immediately dropped to the lower stalks.—Philip A. DuMont, *Des Moines, Iowa.*

A Late Iowa Record for an American Bittern.—About 11 A. M. on November 11, 1932, I encountered an American Bittern (*Botaurus lentiginosus*) near the northwest shore of Spirit Lake, in Dickinson County, Iowa, not far from the Minnesota line. It was perched in brushy vegetation in the lee of a cut bank, and was partially covered with drifting snow. Suspecting that the bird might be a cripple I collected it for examination, but a thorough plucking and post-mortem failed to reveal any sign of injury; indeed, the specimen was in

very good condition. The stomach was about half full of fish remains in a rather advanced state of digestion. At this time the lakes were well frozen over, with the exception of occasional patches of open water.—PAUL L. ERRINGTON, *Ames, Ia.*

Some Bird Notes from Idaho.—On July 31, 1933, I noted five or six Snowy Egrets (*Egretta thula* subsp.) and a single White-faced Glossy Ibis (*Plegadis guarauna*) at a ditch along a road near Roberts, Idaho. Three days later, on returning to the same locality with O. J. Murie, the egrets and the ibis were again seen along the same ditch. After being flushed several times, the egrets finally took refuge in an adjoining reed marsh. The ibis did not tarry, but at once flew off into the distance. In a flooded grain field near by we noted several Ring-billed Gulls and Greater and Lesser Yellowlegs, a single Western Willet and a Solitary Sandpiper.—ADOLPH MURIE, *Museum of Zoology, University of Michigan, Ann Arbor, Mich.*

An Odd Result of a Kinglet's Accident.—I collected near Benicia, Solano County, California, on October 22, 1933, a female Western Ruby-crowned Kinglet (*Corthylio calendula cineraceus*) from a live oak tree, where it was flitting about with several of its companions. I found that the bird had at one time suffered a broken right leg about one-fourth inch above the hind toe. The fractured bone had completely healed together, but in nearly reverse position, so that the hind toe served as a front toe and the three front toes were in the position of the hind toe. I was unable to determine whether or not the bird, when grasping a twig, was able to manipulate the toes of this injured foot. However, the toes had not stiffened and the tendons appeared to be functioning satisfactorily. The left leg was normal.—EMERSON A. STONER, *Benicia, Calif.*

Early Fall Migration Notes from Virginia.—There is still much to be learned concerning the southward migration of birds in the fall, so the following brief notes from the northeastern corner of Virginia may be of interest. On August 16, 1933, while passing through the military reservation at Fort Humphreys, approximately ten miles south of Alexandria, my attention was attracted to a restless flock of warblers feeding on a wooded ridge facing the Potomac River. After following them for a short distance, I was able to identify them as being largely early fall migrants, relatively few being species that nest here. Chestnut-sided Warblers were the most numerous, while Golden-winged Warblers were noted several times, and a male Blue-winged Warbler and a Canada Warbler in immature plumage were likewise seen. A small stream flowed through a ravine here, and feeding at the water's edge, I found three Northern Water-Thrushes. One of these last was collected, and proved to be the western form, *Seiurus noveboracensis notabilis*.—THOS. D. BURLEIGH, *Asheville, N. C.*

The Western Harlequin Duck in Central Iowa.—An adult male Western Harlequin Duck (*Histrionicus histrionicus pacificus*), in full breeding plumage, was collected by Mr. James R. Harlan, December 27, 1932, on the Des Moines River, southeast of Adelphi, Polk County, Iowa. The bird was alone when killed. The specimen was mounted by Prof. J. Steppan, and is now contained in the State Historical Museum, at Des Moines.

Since *H. h. pacificus* was described by Brooks as recently as 1915 (*Bull. Mus. Comp. Zool.*, LIX, No. 5, p. 393), the previous Iowa records were all recorded under the binomial *Histrionicus histrionicus* Linn. Until this specimen was secured there were no Iowa specimens. Measurements in millimeters of this specimen taken by the writer are as follows: wings (chord), 209 and 210; ex-

posed culmen, 28.1; width of bill at base of culmen, 16.0; height of bill at base of culmen, 14.5. Measurements and head markings of this specimen were checked with Atlantic and Pacific Coast specimens contained in the University of Iowa Museum of Natural History. The writer wishes to thank Mr. Harlan for permission to publish this record.—PHILIP A. DUMONT, *Des Moines, Iowa.*

Baltimore Orioles Destroying Trumpet Vine Blossoms.—My attention was called this past season to what seemed to be a trait of the Baltimore Oriole (*Icterus galbula*) that I do not remember to have noticed mentioned in any of the works on ornithology that I have read. Standing about ten feet from our house is a small arbor that was covered with trumpet vines this past season. The blooms of this vine appear in terminal bunches of bell-shaped flowers, a little less than two inches in length. One day I noticed that all the bunches of bloom had been totally wrecked, each trumpet having been split from near the outer end down to the extreme base. The next day I discovered this to be the work of the Baltimore Orioles, and caught them in the act of tearing the blooms to pieces. An examination of an untouched bloom disclosed a drop of nectar in the base of each trumpet, and, as there were no insects in evidence, I inferred that the drop of nectar was what they were after. There were plenty of ants working on the wrecked blooms of the day before, presumably cleaning up the remains of the wrecks. None were to be found on the untouched blooms. This work of the orioles was witnessed by three other persons.

I would be interested in learning whether this is a somewhat common trait of the bird, or is it something rather out of the ordinary. I might add that the birds continued to wreck the blooms all the balance of the season.—F. W. GEORGE, *Aberdeen, S. D.*

Some Notes on Indiana Plovers.—I noticed in the WILSON BULLETIN for June, 1933, that Mr. William Youngworth, of Sioux City, Iowa, reports the Golden Plover as having been seen near that place on October 20 and 21, 1931. That was a surprise to me, as I had always heard that this bird is seldom if ever found in the interior in the fall, but goes through the middle states only in the spring, to the north, and in the fall returns by way of the eastern route, leaving Nova Scotia and flying straight south over the Atlantic, to the coast of Brazil, then going the rest of the way by land to Chili and Argentine. I never before have heard of the fall return of these birds through the central states, so I am interested in getting the facts about them. Are there other records concerning the migration of this bird through the central states in autumn? I would like to hear from any others who have actually seen them going south in the fall through the interior.*

I have seen the Golden Plover in the spring, about twenty-six miles north of this place, where the heavy spring rains had flooded a last year's corn field and the cut corn stubs were still standing. About fifty of these rare birds lingered

*The southward fall migration of the Golden Plover over the Atlantic Ocean represents only the main migration route of the species, for it occurs also regularly in the interior in the fall (see Cooke, Bull. 35, Biological Survey, U. S. D. A., p. 84, and Bent, Bull. 146, U. S. Nat. Mus., pp. 190-191). At the salt lake near Lincoln, Nebraska, individuals or small flocks of the Golden Plovers are to be seen nearly every fall, between the middle of September and the middle of October, most commonly during the third week in September. Earliest and latest dates for the fall migration in Nebraska are August 3 and November 14.—Ed.

about the shallow water, resting, or walking about hunting food. We were very close to them in the car and sat still and watched them with binoculars for some time, as they seemed fearless and calm. A Semipalmated Plover was seen near them, probably being a traveling companion enroute to the northern nesting grounds. I was thrilled at the sight of these Golden Plovers, as they are not often seen in our state, according to reports; but in the last three years Black-bellied Plovers have been reported by ornithologists at intervals over the state.

A fine specimen of the Black-bellied Plover was picked up by the game warden near Anderson, Indiana, on May 24, 1933. I was called to identify it. It had a crippled wing which made it impossible for it to continue on its journey to its summer nesting site within the Arctic Circle. These birds were formerly quite common in spring and fall migrations, but for a number of years have been considered quite rare, thanks to civilization and the gunners who considered them fine game birds. Now they travel singly or in pairs, or sometimes with other birds it is said, but Amos W. Butler, author of "Birds of Indiana", says that within the last three years these birds have been seen occasionally passing through Indiana in the spring, which may prove that they are increasing in numbers.

In captivity this bird ate cottage cheese, ground lean beef, hard boiled eggs and earthworms when they could be had. It liked to eat its food from the shallow water. It ate from the hand, and when let out to exercise, ran like a Killdeer, as these plovers all have the same general habits. It bathed often, and seemed to enjoy itself, even though a wild shy bird when in the open. It gave a peculiar sound occasionally, something like a young rooster learning to crow, generally but once, but sometimes as many as three times together, three notes each time. I cured the bird's wing, but it would never have been normal again and able to migrate with its kind. It died in August, 1933, probably because I could not give it a proper diet.—Mrs. Horace P. Cook, *Anderson, Ind.*

Further Notes on the Birds of Cranberry Glades, West Virginia.—In the Wilson Bulletin for December, 1930, I published a list of birds observed at Cranberry Glades, Pocahontas County, West Virginia. Since the time of writing that list I have had four other opportunities to visit this high mountain swamp, and have added a number of species to my list. The observations follow:

Eastern Green Heron (*Butorides virescens virescens*). A single individual seen flying along one of the branches of Cranberry River on October 15, 1933.

American Bittern (*Botaurus lentiginosus*). Two of these birds were feeding in an alder swamp lining the glades on September 27, 1931.

Common Canada Goose (*Branta canadensis canadensis*). A large flock of wild geese flew over us when we were visiting the glades on October 15, 1933.

Eastern Goshawk (*Astur atricapillus atricapillus*). The 1933 wave of Goshawks struck West Virginia just before our trip into the glades in October, and we saw two individuals, one flying above Big Glade, and another along the trail near the top of Cranberry Mountain.

Eastern Pigeon Hawk (*Falco columbarius columbarius*). On October 15, 1933, while we were having lunch on the site of the old Frank Houtchens cabin, a landmark for visitors to the glade region, one of these small falcons lit in the top of a dead spruce tree just a short distance from us. It was carefully observed with 6x glasses. This bird is not common in West Virginia.

Eastern Turkey (*Meleagris gallopavo silvestris*). Twice as we climbed Cranberry Mountain on October 15, 1933, we heard Wild Turkeys calling, and a hen was flushed from a *Crataegus* thicket as we circled a ridge above the glades.

Sora (*Porzana carolina*). One was seen at the edge of the alders on September 27, 1931.

Killdeer (*Oxyechus vociferus vociferus*). A number of these birds were seen on September 27, 1931. They do not seem to be common in the region.

Eastern Mourning Dove (*Zenaidura macroura carolinensis*). Seen and heard at the glades in May, 1932.

Black-billed Cuckoo (*Coccyzus erythropthalmus*). Careful observation shows these birds to be somewhat common in the region, perhaps more so than the Yellow-billed species.

Prairie Horned Lark (*Otocoris alpestris praticola*). Above the glades on the side of Black Mountain are some open spaces where cattle pasture. Several of these birds were seen in this region on September 27, 1931.

Purple Martin (*Progne subis subis*). Observed in May, 1932.

Brown Creeper (*Certhia familiaris americana*). Mr. Thomas D. Burleigh, of the U. S. Biological Survey, was kind enough to send me the record of a specimen of this bird which he took at the glades in June, 1931. I saw the bird many times on October 15, 1933.

Eastern Ruby-crowned Kinglet (*Corthylio calendula calendula*). Common in October, 1933.

Starling (*Sturnus vulgaris vulgaris*). Even back in the mountain fastnesses Starlings are now to be found. Numbers were seen in October, 1933.

Tennessee Warbler (*Vermivora peregrina*). Observed in migration on September 27, 1931.

Northern Parula Warbler (*Compsothlypis americana pusilla*). Not uncommon on the slopes above the glades, where it seems to breed.

Cape May Warbler (*Dendroica tigrina*). In migration at the glades on September 27, 1931.

Myrtle Warbler (*Dendroica coronata*). Very common in migration on October 15, 1933.

Eastern Meadowlark (*Sturnella magna magna*). Found on the grassy uplands above the glades.

Rusty Blackbird (*Euphagus carolinus*). Migrating here in October, 1933.

Northern Pine Siskin (*Spinus pinus pinus*). We were fortunate enough to see a flock of siskins near the top of Cranberry Mountain on October 15, 1933. These birds are only periodically common in the state.

White-crowned Sparrow (*Zonotrichia leucophrys leucophrys*). Seen October 15, 1933.—Maurice Brooks, *French Creek, W. Va.*

PROCEEDINGS

REPORT OF THE SECRETARY FOR 1933

Columbus, Ohio, December 31, 1933.

To the Officers and Members of the Wilson Ornithological Club:

During the past year, the intensive campaign for new members was continued by the Secretary, to aid in offsetting the unusual membership and financial losses due to present economic conditions. The work was handicapped by the continued high postal rates, which made solicitation on a large scale impossible, by the banking situation of the early part of the year, and by the further retrenchments of expenditures, which prevented dozens of interested prospects from affiliating with our organization. The membership as a whole rendered valuable assistance by sending in nominations. If the members of the Wilson Ornithological Club, during the coming year, make a special attempt to acquaint friends with the benefits of the organization and forward to the officers the names of several membership prospects, it is believed that the 1934 report will show a gain instead of a loss in total members. Also a little encouragement will induce many present members to carry on in spite of financial difficulties.

The membership campaign was quite successful considering the difficulties involved. In 1932, 113 new members were secured. In 1933, 114 new members were added to our rolls as follows: Sustaining, 3; Active, 18; Associate, 93. These new members were distributed through 34 states and provinces: Ohio, 17; Michigan, 14; New York, 10; Illinois, 8; Iowa and Massachusetts, 6 each; Indiana, Vermont, and Ontario, 5 each; California, 4; Missouri and New Jersey, 3 each; Pennsylvania, Texas, Wisconsin, Nebraska, Connecticut, and Maine, 2 each; Idaho, Georgia, Louisiana, Maryland, Montana, Minnesota, North Dakota, New Mexico, Tennessee, South Dakota, Utah, District of Columbia, Alberta, West Virginia, Quebec, and Wyoming, 1 each. Records of new subscribers are kept by Editor Stephens and Treasurer Rosene. Disregarding some duplications in nominations, the various members responsible for the applications of the new members, were as follows: Lawrence E. Hicks, 99; T. C. Stephens, 13; W. M. Rosene, 4; Jesse M. Shaver, 3; L. H. Walkinshaw, 2; William B. Taber, Jr., Lynds Jones, Rudolf Bennitt, Maurice Brooks, Miles D. Pirnie, Mrs. Stanley B. Mulaik, and Harold C. Jones, one each.

In spite of these increases, the Wilson Ornithological Club has fewer members than last year, due to the unusually large number of resignations and delinquencies for 1933 forced by present conditions. The list of drops is larger than that of last year, partly because fewer delinquents have been retained on the rolls past the first of the year. The total number of members lost during the year 1933 was 189, 32 being Sustaining, 21 Active and 136 Associate. Life members increased by 2. Thus there has been a total loss of 73 members during 1933.

This leaves the present membership of the Club at 661, distributed as follows: Honorary, 7; Life, 12 (two also are Honorary); Sustaining, 46; Active, 172; Associate, 426.

Respectfully submitted,

LAWRENCE. E. HICKS, *Secretary.*

REPORT OF THE TREASURER FOR 1933

From November 21, 1932 to December 30, 1933

Receipts for 1933

November 21, 1932, Balance on hand as per last report		$ 547.52
The following was collected as dues from members:		
1 Active member for 1931	$ 2.50	
2 Associate members for 1932	3.00	
2 Active members for 1932	5.00	
322 Associate members for 1933	483.00	
138 Active members for 1933	345.00	
35 Sustaining members for 1933	175.00	
44 Associate members for 1934	66.00	
8 Active members for 1934	20.00	
2 Associate members for 1935	3.00	
1 Active member for 1935	2.50	
1 Active member for 1936	2.50	
Life membership of L. E. Hicks in instalments	100.00	
Total from membership dues		1,207.50
The following was collected from subscribers:		
1 Subscriber for 1932	1.50	
76 Subscribers for 1933	114.00	
20 Subscribers for 1934	30.00	
1 Subscriber for 1933 at	2.50	
19 Foreign subscribers and members	35.29	
12 Fractional subscriptions	13.65	
Total from subscriptions		196.94
The following were miscellaneous receipts:		
Total donations for the year 1933	12.50	
Sale of extra copies of Bulletin	31.60	
Publication fund	15.00	
Miscellaneous receipts		59.10
Total receipts		$2,011.06

Endowment Fund

November 19, 1932, Balance on hand from last report	$1,142.71
December 1, 1932, Interest from City State Bank	18.23
June 1, 1933, Interest from City State Bank	18.65
Life Membership, Charles H. Rogers	100.00
Life Membership, Lawrence E. Hicks	100.00
December 30, 1933, Balance on hand	$1,379.59

This balance is deposited in the Savings Department of the City State Bank of Ogden, Iowa, at 3 per cent interest, and is covered by the Federal Deposit Insurance. Nothing has been paid out of this fund during the year.

DISBURSEMENTS FOR 1933

Printing four issues of Bulletin	$754.73	
Cost of halftones, zincs, etc.	49.27	
Other expenses in Editor's office	80.13	
Publication costs		$ 884.13
Expenses, President's office	4.69	
Expenses, Secretary's office	230 65	
Expenses, Treasurer's office	53.75	
Expenses, Library (freight, drayage)	32 35	
Subscriptions refunded	2.35	
Exchange on Canadian checks	1.72	
Membership in Ecological Society	1 00	
Transferred to Endowment Fund (Life membership)	100.00	
Check returned	1.50	
U. S. Tax on 52 checks at 2 cents each	1.04	
General costs		429.05
Total disbursements		$1,313.18
Balance on hand, December 30, 1933		697.88
Total		$2,011.06

(An itemized list of disbursements with vouchers is attached for the Auditors)

Respectfully submitted,

W. M. ROSENE, *Treasurer.*

Ogden, Iowa, January 22, 1934.

REPORT OF AUDITING COMMITTEE

Winthrop, Iowa ,January 27, 1934.

We, the undersigned Auditing Committee, have examined the report of the Treasurer of the Wilson Ornithological Club for the fiscal year ending December 30, 1933, and have found it correct in all details. The statement of receipts and disbursements is accurate and the accounts are balanced. The vouchers as submitted to us have been checked against the itemized list of disbursements and the latter has been found correct. We commend to the attention of the membership the painstaking work and ability of Treasurer Rosene in handling the Club's funds, which stand at a very satisfactory figure at this time.

Respectfully submitted,

(Signed) FRED J. PIERCE.
OSCAR P. ALLERT.

REPORT OF LIBRARIAN FOR 1933

Ann Arbor, Michigan, January 30, 1934.

I have the honor to present herewith the third report of the Librarian of the Wilson Ornithological Club.

EXCHANGES. During the past year the Library has received regularly on exchange *Iowa Bird Life* and the University of Iowa *Studies in Natural History*. In January, 1933, the Editor sent to the Library the following titles which he receives on exchange:

Natural History, Condor, Bulletin Société Zoologique de Geneve, Ibis, Beiträge zur Fortpflanzung-biologie der Vogel, Vogelzug, Kocsag, Danske Fugle, Journal of the Tennessee Academy of Science, Cardinal, Yearbook of the Milwaukee Public Museum, Alauda, Journal für Ornithologie, Transactions of the Kansas Academy of Science, Annalen, Naturhistorischen Museum, Vienna.

The exchange of the Bulletin for not only domestic but also foreign journals will be of inestimable scientific value to the Club and its Library in the field of research. In this field the exchanges may quite naturally become the very backbone of the research library.

BINDING. Many of the journals received from the Editor have been bound by the University bindery in green cloth at no expense to the Club. In this way we hope to properly preserve these periodicals, many of which are irreplaceable.

REPRINTING. On the matter of reprinting out-of-print numbers of the Bulletin some progress has been made. With funds available from the sale of back numbers, the Librarian has negotiated with the firm of Edwards Bros., of Ann Arbor, for the reprinting of Bulletin No. 10 (September, 1896). One hundred copies are being made by the new lithoprint process and will be ready for sale before the appearance of the March Bulletin at $1.00 per copy to non-members and 80 cents to members. Members may recall that Bulletin No. 9 was reprinted in 1932 by the same firm and is available at the same price as No. 10.

STOCK. During 1933 the stock of Bulletins in the custody of the Librarian was augmented by a shipment from the Editor of Bulletins covering 1925-32, with certain few exceptions.

BOOK PLATE. As yet no book plate has been adopted by the Club, although several have been submitted.

DONORS. The Librarian takes pleasure in acknowledging gifts to the Club Library from the following during 1933:

Mr. F. L. Burns, Berwyn, Pennsylvania.
Mr. W. E. Collinge, York, England.
Mr. Leon Kelso, Washington, D. C.
Miss Margarette Morse, Viroqua, Wisconsin.
Mr. W. J. Willis, New York City, N. Y.

The gifts to the Library for 1933 total 36 bound volumes and 298 separates, reprints, and unbound numbers of periodicals. This makes a total for the three-year period of the existence of the Library of 156 bound volumes and 1,145 separates.

Respectfully submitted,

F. P. ALLEN.

COMMUNICATIONS

To the Editor of the WILSON BULLETIN: May I suggest to your readers as an unusually interesting subject for field-study the inter-relationships of breeding Purple and Bronzed Grackles in any part of that area, from Massachusetts to Louisiana (and probably Texas), where these two species hybridize.

When I began a study of these birds, forty-odd years ago (Bull. Amer. Mus. Nat. Hist., Vol. IV, 1892, pp. 1-20), transportation facilities were comparatively limited and I had but few specimens and fewer field-notes from the region mentioned. Today, the field-student with a motor car at his command, defies distance. I hope, therefore, that he will defy it early during the coming breeding season and visit grackle colonies anywhere in the region I have referred to, but especially in the lower Mississippi Valley and more especially in southwestern Louisiana and northeastern Texas.

Full series of males should be secured and when the collector has finished his own researches, I should be greatly obliged if he would loan these birds, and any other pertinent material to me for resumption of the studies I began in 1891 and continued at the last A. O. U. meeting.

Yours truly,

FRANK M. CHAPMAN.

American Museum of Natural History, New York City.
February 14, 1934.

To the Editor: The Editor's Note on page 207-8 of the December, 1933, WILSON BULLETIN is of great interest to anyone who, like the writer, must judge other people's sight-records—an invidious, seldom-dared, but indispensible service to Ornithology! While I agree with the tenor of this Note, my experience has shown that there is peril in *any* departure from the "verifiable specimen" rule. Last spring, for instance, a strange bird appeared at a farm in West Springfield, Massachusetts. The first bird-student who saw it, a woman of long experience, with several unique but believable sight-records to her credit, identified it as an Arkansas Kingbird, and as such it was accepted by a great many observers during the next two days, who compared it with the plate in *The Birds of Massachusetts*. It seems that I was the only bird-student in this region who had ever *seen* an Arkansas Kingbird, and not until it had stayed three days was I taken to see this one. A long search was necessary, on a numbingly cold morning, and I almost missed it. If I had, if the wanderer had disappeared, a letter, already written and shown me, would have been sent to *The Auk*, recording the *first vernal* Arkansas Kingbird ever occurring in New England. Confirmed by numerous witnesses, this would undoubtedly have been accepted and passed into "science". But the moment I set eyes on the bird I knew it was *not* an Arkansas Kingbird but either a Fork-tailed or Scissor-tailed Flycatcher—I could not say which as I had never seen either and had no distinct memory of their pictures. Reference to books immediately showed that it was a female Scissor-tail. Collected next day (April 29), it is now mounted in the Boston Museum of Natural History.

That was an instance of a conspicuously-marked, easily identifiable species being mistaken, from lack of prior acquaintance, by several truly expert amateurs —by which I mean students who know only living birds. On the other hand, what can we make of a still more recent local record like this? A well-grounded scientist, with thorough acquaintance (in Greenland) with the Black Guillemot, is traveling from Worcester to Springfield on January 2, 1934. His bus stops close to a narrow stream, and he sees through its window, within forty or fifty yards, three Black Guillemots lying on the ice at the edge of the current and a fourth moving awkwardly, characteristically, beside them. One of the prone ones is mostly or wholly in summer plumage. He does not note the red legs but recognizes the species instantly. The bus drives on, no other bird-student can confirm the record—and the Black Guillemot has *never before*, that I can find, been seen on fresh water anywhere in Massachusetts. These birds birds were sixty-five or seventy miles from the sea (Boston Harbor). Are they recordable?

The editor rightly stresses the preservation of verifiable specimens. Several Rails shot here in the 1880s were then recorded as the Clapper. Re-examination, a generation later, of two fortunately existing skins showed them to be the King. Specimens of a Plover taken in 1884 were then listed, warily, as "Piping or Ring-neck". Lower on the same page they were referred to as "Ring-neck", but since "Piping" had been mentioned first, and its scientific name, only, added, the next recorder of Amherst birds took this as establishing the occurrence of the Piping Plover there, and all our bird-books have copied from him; so when another small Plover was collected many years later it was thus identified. Now the 1884 skins have disappeared but the later one is an immature Semi-palmated Plover, and since many sight-records of that species but none whatever of the Piping have recently accumulated, all the Piping Plover records founded on the 1884 ambiguity must be discredited.

As to the relative identifiability of subspecies and species, I must differ from the editor. In these parts, where subspecies do not much bother us, it is *easier* to distinguish the two races of Black Duck than the two species of Scaup, or females of the two Golden-eyes or of the American and King Eiders. It is *much* easier to tell extreme examples of Acadian and Nelson's Sparrows (subspecies) apart, than silent Flycatchers (species) of the genus *Empidonax*. It is no harder to distinguish the Prairie from the Northern Horned Lark than the Olive-backed from the Gray-cheeked Thrush; and the two forms of Palm Warbler seem as unlike as the two water-thrushes. In the West, what with intergrades, etc., this is doubtless untrue, but there as well as here a number of "paired species" must occur which tax the discrimination of the field observer.

Humanity's aptitude for error is infinite.

Samuel A. Eliot, Jr.

Smith College, Northampton, Mass.

TO OUR CONTRIBUTORS

Our members are urged to submit articles for publication in the BULLETIN. Short items are desired for the department of General Notes, as well as longer contributions, especially pertaining to life-history, migration, ecology, behavior, song, economic ornithology, field equipment, and methods, etc. Local faunal lists are also desired, but they should be annotated, at least briefly, and should be based upon sufficient study to be reasonably complete. Authors are asked to include the common name, the scientific name (from the A. O. U. Check-List), and annotations, and they should be arranged in this order. The annotations should include explicit data concerning unusual species. Omit serial numbering.

THE MANUSCRIPT. The manuscript, or copy, should be prepared with due regard for literary style, correct spelling and punctuation. Use sheets of paper of good quality and of letter size (8½x11 inches); write on one side only, and leave wide margins, using double spacing and a reasonably fresh, black ribbon.

The title should be carefully constructed so as to indicate most clearly the nature of the subject matter of the contribution. Where the paper deals with a single species it is desirable to include in the title both the common and the scientific names, or, to include the scientific name in the introductory paragraph. Contributors are requested to mark at the top of the first page of the manuscript the number of words contained. This will save the editor's time and will be appreciated.

Manuscripts intended for publication in any particular issue should be in the hands of the editor sixty to ninety days prior to the date of publication.

ILLUSTRATIONS. To reproduce well prints should have good contrast with detail. In sending prints the author should attach to each one an adequate description or legend.

BIBLIOGRAPHY. The scientific value of some contributions is enhanced by an accompanying list of works cited. Such citations should be complete, giving author's name, full title of the paper, both the year and volume of the periodical, and pages, first and last.

PROOF. Galley proof will be regularly submitted to authors. Page proofs will be submitted only on request. Proof of notes and short articles will not be submitted unless requested. All proofs must be returned within four days. Expensive changes in copy after the type has been set must be charged to the author.

SEPARATES. The Club is unable, under present financial conditions, to furnish reprints to authors gratis. Arrangements will be made, however, for such reprints to be obtained at practically cost. The cost will vary somewhat with the nature of the composition, but will depend mainly upon the number of pages. A scale of rates is appended which will serve as a guide to the approximate printer's costs.

If a blank page is left in the folding this may be used for a title page, which will be set and printed at the rate indicated. If a complete cover with printed title page is desired it may be obtained at the rate shown in the last column. All orders for separates must accompany the returned galley proof upon blanks provided. Orders cannot be taken after the forms have been taken down.

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100	1.50	2.25	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	2.75
200	2.00	2.75	4.25	5.50	6.75	8.00	9.25	10.50	11.75	13.00	14.25	3.00
300	2.75	3.50	5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	15.00	4.00
400	3.25	4.00	5.50	6.75	8.00	9.25	10.50	11.75	13.00	14.25	15.50	5.00
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Repaging—25c per page extra. Title Page—$1.25.

Annual Meetings of the Wilson Ornithological Club

	Retiring President
1914—Chicago. February 5. Chicago Academy of Sciences.	
1914—Chicago. December 29-30. New Morrison Hotel	T. C. Stephens
1915—Columbus. December 28-29. With the A. A. A. S.	T. C. Stephens
1916—Chicago. December 27-28. New Morrison Hotel	T. C. Stephens
1917—Pittsburgh. January 1-2, 1918. With the A. A. A. S.	W. F. Henninger
1918—No meeting on account of the exigencies of war	M. H. Swenk
1919—St. Louis. December 29-30. With the A. A. A. S.	M. H. Swenk
1920—Chicago. December 27-28. With the A. A. A. S.	R. M. Strong
1921—Chicago. December 26-27. The Field Museum	R. M. Strong
1922—Chicago. October 26	T. L. Hankinson
1923—Cincinnati. Dec. 31, 1923-Jan. 1, 1924. With the A. A. A. S.	T. L. Hankinson
1924—Nashville. November 28-29-30. Peabody College	A. F. Ganier
1925—Kansas City. December 28-29. With the A. A. A. S.	A. F. Ganier
1926—Chicago. November 26-27. Chicago Academy of Sciences	A. F. Ganier
1927—Nashville. Dec. 30, 1927-Jan. 1, 1928. With the A. A. A. S.	Lynds Jones
1928—Ann Arbor. Nov. 31-Dec. 1, 1928. Museum of Zoology	Lynds Jones
1929—Des Moines. December 27-28. With the A. A. A. S.	Lynds Jones
1930—Cleveland. December 29-30. With the A. A. A. S.	J. W. Stack
1931—New Orleans. December 28-29. With the A. A. A. S.	J. W. Stack
1932—Columbus. November 25-26. The Ohio State Museum	Jesse M. Shaver